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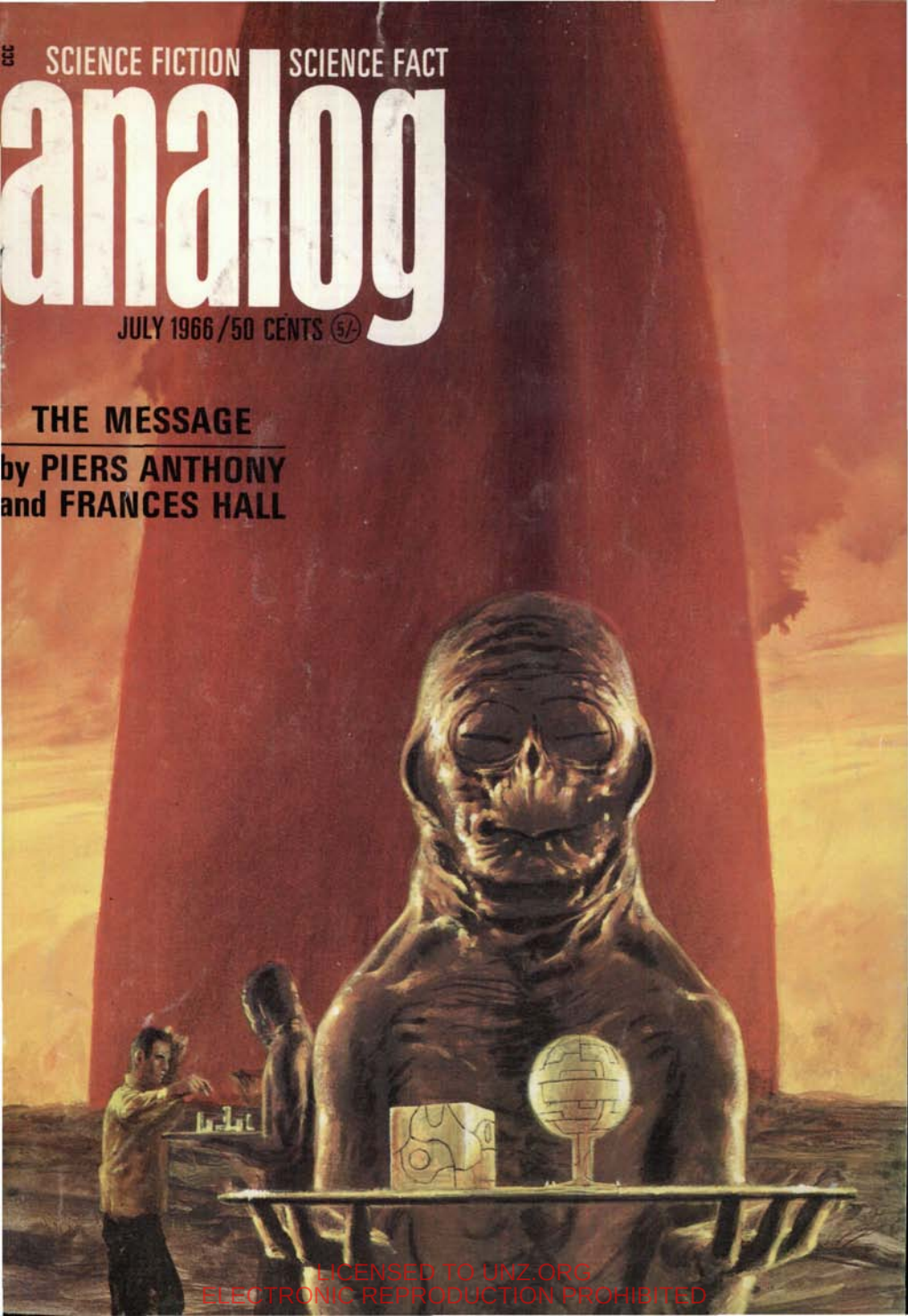
JULY 1966 / 50 CENTS 5/-

THE MESSAGE

by PIERS ANTHONY
and FRANCES HALL



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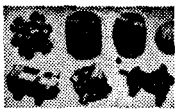

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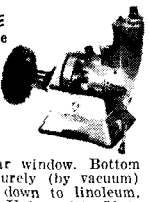

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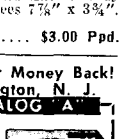

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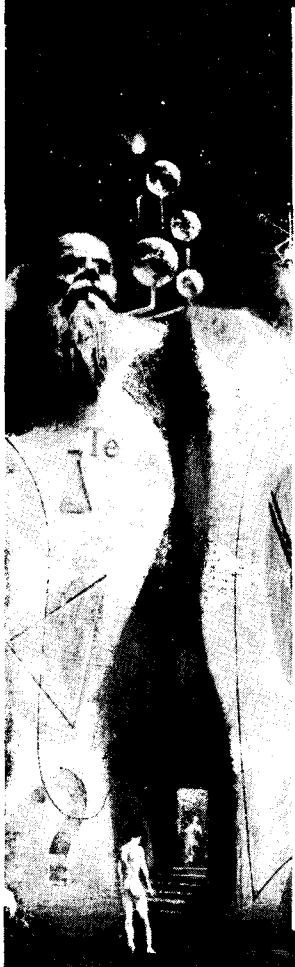

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"UNSAFE AT ANY SPEED"

Editorial by John W. Campbell

There has been a tremendous amount of hoorah ever since the book "Unsafe At Any Speed" brought out the surprising fact that automobile manufacturers sometimes goof. Expressions of shock and surprise have come from all political quarters.

I wish to add my expression of shock and surprise—at the naiveté of our politicians. Are they so unconscious as to be unaware that human beings, and the efforts of human beings, always have been and always will be imperfect? So unaware of the real world around them they didn't know the manufacturers always have, and always will, goof every now and then—and, being human, prefer not to yell about it publicly? If our politicians and statesmen are that out of touch with reality, they, like some of those goof designs they are now howling about, should be replaced by more competent units.

Currently a number of manufacturers of astronautical equipment are conducting major campaigns for "zero defect production"—an ideal goal.

So long as the immense organization at Cape Kennedy can—for all their elaborate check-outs, countdowns and electronic check-out systems—manage rocket launchings that don't go off—somebody left a plastic cap on where it didn't belong, and a three-day space mission gets chopped with the closest approach yet to killing a couple of astronauts because of a defective thruster—an occasional goof can be allowed automobile manufacturers.

It is true that the Corvair seems to have an abnormal number of major goofs and mistakes. It started out with a goof in the design of the V belt that drove the air-cooling blower so that the belt tended to touch a support bracket, rapidly grinding itself away—and the first indication the driver got was the sudden ceasing of the overheated engine. This was corrected by a redesigned belt and bracket after a few hundred engines burned out.

The mistaken and genuinely dangerous bad design of the cornering performance of the Corvair—it tended to tuck its wheels under on a sudden emergency turn, with complete loss of control—should not have been continued for a couple of years after they knew the problem existed. Some real, solid censure of the manufacturer who continues to manufacture a product which he *knows* has a designed-in unstable structural performance is merited.

But the screaming about minor goofs and unexpected flaws . . . There is something decidedly pecu-

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liar in a bunch of politicos being shocked to discover that human beings sometimes make mistakes.

It's been known, however, since the early days of automobile driving that far and away the most dangerous part of a car is the nut that holds the steering wheel. It remains true and can be guaranteed to remain true. The driver who has six accidents in four years is still allowed to drive—and remain absolutely convinced that every one of the accidents was the fault of the other guy —or a mechanical defect in his car over which he had no control. Like if he had a man-kill smash-up because his brakes didn't work, and he knew they were defective two days before but hadn't gotten around to getting them fixed (he was too busy and his regular garage wanted too much and he was going to look for a cheaper place) why obviously the accident wasn't *his* fault. It was the fault of the manufacturer for making cars so poorly the brake wore out when the car was only eight years old.

And he drives with the sublime conviction that his brakes are good; he can stop as fast as that guy ahead. So he rides nuzzling up to the other fellow's rear bumper.

Then the leader stops much faster than his brakes can—by running into a truck.

Also, there is this business of seat belts. It'd be simple indeed to wire

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THE MESSAGE

"Stupid" means the failure to learn from experience. And one of the lessons he had learned was the useful one that if an answer is sufficiently way-out wrong, it can be right!

PIERS ANTHONY *and* FRANCES HALL

Illustrated by John Schoenherr

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"Manuel Ramirez, you deserve to be kicked by a mule for your stupidity!" the young man exclaimed, venting his Latin heritage upon himself.

It was his own fault. He had not survived his childhood in the savage gutters of Juarez without many times learning the lesson of appearances. Now he was caught in a trap—clean and clean shaven in his presentable clothes, black hair slicked back—and two hundred solars wadded into his back pocket.

Even without the money, never should he have left his knife at home. Fluency was all very well; but his skills with the tongue had now led him into the fatal error of overconfidence. True, one does not go armed to the University Registrar's office; neither does one present oneself there without the necessary fee. These are laws of civilization. But also, one does not cut through an unlit alley alone. This is the law of survival. Exultation is no excuse for carelessness, in Juarez.

Two men blocked the farther exit, their dark shapes silhouetted against the blinking neons of the saloons in the thoroughfare beyond. Manuel did not need to look back to know that there were two more behind him; he read it easily in the confident stance of those ahead.

"These hombres have you in the sack, Manuel," he told himself. "You stand now an excellent chance for the knife in the gut, or the brains splattered upon the pavement. Before or after they obtain your two hundred. Or perhaps during the transaction. Soon your solars and your future will be gone . . ."

There was no place he could hide; the hombres were already watching him, sure of their mark. He could not run, nor could he hope to fight; there were too many, and they would know their business. Yet it seemed such a great waste. By centavo, by peso, solar by solar, Manuel had earned the money, as bouncer in the saloons of Juarez—where a glib tongue often made cruder measures unnecessary—and at other odd jobs. He had saved the solars by ruthlessly denying himself all but basic necessities. If he did not register now, this evening, his place would be taken by the next applicant in line and he would not be able to move up again before he was beyond the registration age. For space, only young men were wanted; twenty was too old to begin the long training. There were great numbers of applicants, all deserving; a man had to make use of his chance when he had it, or it was lost to him forever. There was no sympathy; no excuse.

If he did not resist, maybe they would not kill him. Yet he could not give up his fee. His whole meager life had been focused on this point, this entry into the University, this escape from the terrible squalor, this evening in the twentieth year of his life. His money was his life. He must try to save it.

How? There was no way. He was alone.

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No way—except the unexpected. That was it.

He must put up the bluff. He must surprise them.

Manuel quickened his pace—toward the hoods in front. He gestured and called out, as though afraid they might not see him. Surprise. Put them off balance. *What he would do or say when he reached them he did not know.*

Captain Eric Larsen of the starship *Alpha One* sat stiffly at his desk, frowning tensely at a thin sheet of paper in his hand. He looked up at Ramirez's entrance, and the frown was replaced by a look of chill disapproval at the brown xenologist clad in informal whites.

Ramirez thought: *Diablo! Every inch the offended colonial, el Capitan, here. And only yesterday I hoped he might mellow.*

This was Larsen's first FTL command, he knew. *Alpha One* was the first super-c ship owned by the people of Rigel, Earth's first stellar colony. This voyage of trade was the first one under the new ownership; it was also the first flight ever to be scheduled from Rigel direct to the Holmen colony at Tau Ceti. One might expect a certain reserve in a young man carrying such responsibilities. Moreover, in mid-passage a capsule had arrived from the Acting Executive of Rigel, and the orders it contained the captain could only consider frivolous: The *Alpha One* must not bypass the third vertex of the stellar triangle, after all; he and his crewmen must take the *Alpha One* to Earth, there to take on a passenger for Holmen. Ramirez. All this was hardly calculated to mend the young captain's humor.

All this Ramirez had taken into account; all this he could have dealt with. But neither by tact nor diplomacy had Ramirez been able to allay the other's bitterness. He looked again at the cropped blond hair and the ice-blue eyes staring back. This rancor sprang from deeper wells than those of a disgruntled colonial whose ego had been mishandled. What had happened?

The captain shoved the paper at him. "Look this over, *Doctor* Ramirez."

The paper was very thin and dirty yellow. Both sides were filled with dots and dashes in closely packed squares. It resembled Morse code; yet the greenest com man could not have taken it for any human message. Ramirez fingered the smooth surface curiously.

This message could be, incredibly, only one thing.

"It's the Thargan code."

Captain Larsen smiled sourly. "Very good, Dr. Ramirez. *Very* good. Tell me, can you by any chance read this Thargan code? For that matter, Doctor, can you read Thargan itself?

Ramirez ignored the baiting tone. He could not fully understand the colonial's resentment of him; but his past had schooled him in strict con-

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trol. Almost unconsciously he dug a hand into his pocket. He palmed the two copper centavos and closed his hand about them until their edges bit painfully into the flesh. Until such understanding came, he must refuse to be provoked. He answered evenly: "I can make out something of both, Señor Capitan—"

"*Something* of both?" Larsen interrupted dryly. "Perhaps I misunderstood. I was under the impression that my ship had been pre-empted by the author of the first authoritative dictionary of Thargan."

Laboriously, Ramirez corrected the multiple confusion. "Getting this Earthman to Holmen at the earliest possible moment was a matter of some importance, Capitan, and no other ship could be readied in time. *Alpha One* was already en route to Tau Ceti."

"So Mother Earth commands us to make a detour—to backtrack. Earth just can't get used to not commanding the comings and goings of every piece of interstellar hardware she chooses to need at the moment, whether she owns it or not."

"It did not seem too much to ask that a small detour be made—for which Earth, I believe, paid very well."

Larsen snorted. "A *small* detour? We had to turn back to Earth when we were a third of the way to Tau. We have lost a full two weeks, Doctor."

Ramirez continued: "As for the dictionary—of course we do not know that it is authoritative. The Thargs doubtless have far superior references for their own use . . ."

Another derisive snort.

"But in any case, I did not author it. I *edited* it, using the lists and notes compiled by a Señor Kelly of Holmen."

"You know Kelly?"

"I met him when I visited Holmen three years ago—but that was before this visit from the Thargs."

Before this visit. But not before a previous encampment by intelligent aliens on Holmen. The deserted remnants of this encampment were what Ramirez had gone to Holmen to examine.

Holmen, the sole planet of Tau Ceti, almost twelve light-years from Sol, was Earth's second—and farther— extrasolar colony. The colony was minuscule—some nine hundred people—but thriving. To the Holmenians, two years before, fate had assigned the doubtful honor of first actual contact with the aliens.

The first meetings had gone well. A vast slick block of a ship came down out of a gray sky one fall day, and metallically black humanoids walked out of it. The visitors' shapes were subtly . . . wrong. At a distance they appeared oddly unsolid. This was an illusion; they were quite sturdy.

The aliens seemed more surprised at the meeting than were the people of Holmen, and eager to get acquainted. Communication of sorts

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was soon worked out. The aliens stayed.

And stayed.

They were neither overly friendly nor overtly hostile. A vague unease began to grow among the Holmenian colonists—nine hundred men, women and children isolated twelve light-years from Sol.

The Thargs were adept; they quickly picked up human words, but seemed inept at conveying their own. A young colonist named Kelly, with a knack for linguistics, had labored for months compiling a long but far from adequate list of words and concepts, and had sent it to Earth at his first chance. That had been many months ago. Ramirez, on Earth, had taken over the lists and pored over them night and day.

Was it possible to derive any basic knowledge of the Thargs through a close study of their language? Ramirez thought so. As in human languages, something of their world, their history, their values—their cultural essence—must inhere in their speech. And in their artifacts.

But Thargan artifacts were absent. Even reports of them were hard come by. Someone had taken a picture of the Thargan ship. Compared to its skyscraper size and slick lines, Sol's FTL models were crude and lumbering; but no human being had stepped inside the Thargan ship. However, the Thargs displayed their gadgets freely to their hosts.

They were ingenious, the gadgets. They seemed almost to have intelligences of their own; but no human being seemed ever to have examined their working parts. Oddly, the Thargs showed an intrigued interest in the frankly inferior machines of the Holmenians. Why? In the face of such scanty information, man was left with their language as almost the sole clue to Thargan culture—or subculture. How typical were these visitors of their kind?

While the Thargs tarried on at Holmen, Ramirez had burned out months of his life assembling Kelly's definitions and conjectures into an intelligible grammar. He now knew the language as well as any human being; but it was what he did not know that disturbed him. He called for help, and got some.

While a study team of Sol's top men in many specialties attacked the information, Ramirez flew to Oslo. The only native Holmenian on Earth at that time was a girl named Lydia Farrell, who was finishing her senior year at the University there. She would not have seen any Thargs herself, but there might be information she had received in her letters from home.

Absorbed in the sinister riddle of the Thargs, trying to probe the unknown implications of Earth's first meeting with the alien, Ramirez had flown to Oslo completely unprepared for anything important to happen in his personal life. Then he met Lydia.

She had the grace of a nymph,

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she had the face of a sunny-ringleted madonna, and he realized—with a shock almost of recognition—that she was the One.

In time, the study team came up with a few probative conclusions. The Thargan ship had come from a star far more distant than any that solar ships had attempted to visit. The consensus was that their world was probably a planet of one of binary suns. Acrux, some three hundred seventy light-years from Sol, seemed most likely to be their home star.

The men of the study team sifted and sorted and programmed the computer; and Ramirez's unease spread to the others. Their information was shot through with ominous gaps, small discrepancies. They spoke to each other of cultural differences in, for example, the worth placed upon the individual; they must allow for this. Even so, "ngan" seemed to share more of the connotations of the human word "unit" than of "person." Why?

Machine culture? A hive society? No. These Thargs were highly independent. It occurred to Ramirez that such adverse connotations could be the result of words such as "ngan" being used in a slang sense; the argot, perhaps, of some particular group of Thargs; but this was only a hunch that he had no way of testing.

In any case, Earth could not take it for granted that the Thargs were friendly; even less could Holmen. Small incongruities persisted. Disturbing ones. What was it the madonna had said? (Even now it was hard to sort out the information objectively.) The Thargans had shown great interest in books on human anatomy, borrowing them from the settlement's new hospital, presumably to duplicate for their ship's records. Also, Thargs were always on hand to observe the colonists at their work and at their recreation. They passed out puzzles of various kinds, and taught them various games of mental skill—though the Thargs rarely played themselves, preferring to watch the colonists compete with each other. "It's as if they were running us all through a battery of intelligence tests," a friend had written Lydia from Holmen. "Why?"

Then there was the size of their ship. Earth's hyperdrive was complex—but fairly small. In theory, its size need not be greatly increased even on an intergalactic flight. So, it probably was not to house the drive that the Thargan ship was so large; and the Thargan crew was less than a hundred. Did the Thargs, then, carry cargo? If so, it was never unloaded. Or did they expect to return with cargo . . .?

The Solar Government became convinced now that more, much more, must be found out about the Thargs—soon. Ramirez was commissioned to go to Holmen and find out all he could. This was the reason behind the commandeering of the *Alpha One*. Nine hundred colo-

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nists and more lived on Holmen, and the madonna was one of them; she was already en route back to her native planet when Ramirez, his heart thumping like a schoolboy's, had called to invite her to a concert, to any place that would serve as an occasion to be in her company again. Diablo! He should have guessed she would return on the only ship available for months. And she would return to an incalculable danger . . .

He must not be too late.

Larsen's heavy irony snapped Ramirez from his musings. "If the good Señor Doctor will condescend to share the message . . .?"

"May I ask how this came into our hands, Capitan?"

"The net intercepted it forty minutes ago."

As Ramirez studied the sheet he could make out only bits and pieces at first; but his fingertips went cold, and for a moment the cabin seemed to lurch about his head. His spine stiffened. "May I see the capsule this came in?" he asked sharply.

Coldly, Larsen reached into his desk and produced it.

The Thargan artifact closely resembled the type of message capsule that was standard on Earth-made FTL ships. Like the Terran product it was of some paper-thin black metal and felt warm to his palm. At one end was a tiny drive mechanism—worthy of later study on Earth, for the Thargan ships seemed faster than Earth's FTL's, and capsules below a certain critical mass—and these were well below—were faster yet, in hyperspace. At the other end of this one was the signaling mechanism, tightly sealed in.

They could never have intercepted the capsule had it been moving at full velocity; it must have just started on its journey.

"You have complete data on this capsule's hypergeodesic, Capitan?"

"Naturally." The captain fished in the desk again and handed Ramirez a slip on which was scrawled a long series of numerals and letters. Ramirez studied them and performed some complex mental calculations. Some showed the capsule's course when intercepted; the others were a decimal translation of the destination instructions edge-coded into the capsule itself. Still another set showed the position, course, and velocity of the *Alpha One* at the time the capsule's signal was picked up.

Larsen said: "We now know their home planet, no doubt. Or will, as soon as you deign to tell—"

But Ramirez was beyond resenting or even noticing Larsen's manner. "If a quick reckoning is correct, we have been right about their home world. This capsule was on its way to Acrux."

"The message, *Doctor?*"

Ramirez could not be certain of every word; but he knew with fateful certainty that his rendering was roughly correct.

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To: Commander Ahum, X-Cybernet Procurement.

From: Pulguth Bax, Active Procurer, Capt., *Moloch*.

Subject: Availability of X-Cybernet Units, Sector 3.

1. Unit supply discovered Sector 3 planet subject of previous communication.

2. The planet's entire unit supply was immobilized per schedule and has been transferred to ship's cargo holds.

3. Units in prime condition. Transfer has been accomplished with no functional impairment, but no further immobilization other than phase 2 will be risked.

4. Units will be delivered in phase 2 for processing.

"So, *now* we see why these Thargs travel about in such a giant ship!" Ramirez said under his breath.

Larsen took back the copy. "I was directed by the Acting Executive of Rigel—by special capsule, no less! —to keep you fully informed of any alien life or communication encountered in that connection, and to consult with you on any matter in such connection. So, I herewith consult. Do we put this message back into the capsule and let it resume its journey, or do you want it for your collection, Doctor?"

Ramirez's face was gray. "Señor Capitan, it does not matter now about that! First we must think how we are—"

Larsen interrupted peremptorily: "I have consulted with you. I have fulfilled my obligation. You may go now, Dr. Ramirez."

Ramirez stared at the young captain. He didn't understand!

"Capitan, I must tell you—"

"Doctor," Larsen said with controlled fury. "I am a fair man. I'm going to explain to you just once why your presence in my cabin is intolerable to me. Then you will leave —on your own or with help." Larsen put his hand in his jacket and withdrew a disk about the size of one of the antique dollar coins of North America. He handed it to Ramirez. "Look at it. What do you see?"

With no premonition Ramirez glanced at the disk; and held it, and stared at it. He clamped an iron control on his inner turmoil. He *must* have the captain's co-operation; and the captain must unburden himself of some venom before any information could get through to him.

"I see . . . a madonna," he said at last. "She is most lovely indeed."

Larsen reclaimed the picture, staring into its illusion of depth and life. His features softened. "This is . . . Lydia. I met her at Oslo. I was studying astrogation at the University there, while Rigel was negotiating for *Alpha One*. She graduated *summa cum laude* and returned to her people on Holmen a month ago. She was to be my bride—"

It must be like this, Ramirez thought hazily, to see your own arm

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lopped off, and know that presently you will feel the pain.

Was to be. It was not too late, then. He need not tamely accept—

But time was racing away. Even now Lydia could be beyond all help. He shook, but quickly regained self-control.

"May I congratulate you on your taste," he heard himself say to Larsen.

"You may not! I was to marry her the moment my ship . . . the *Alpha One* . . . arrived on Holmen on the anniversary of the Holmen settlement. It was to have been a glorious occasion—a new anniversary to add to the old—the date of first trade independent of Earth. And the captain of that expedition had the promise in marriage of the most beautiful and intelligent girl of new Holmen. Yes, the girl in that picture—until you broke it up."

Ramirez started violently. "I, Capitan!"

"You. You, I believe, are the one who pulled political strings to get a passenger's ticket aboard an independent ship—one not even scheduled . . . You are the one who somehow pressured the Acting Rigellian Executive to order the vessel to detour to Earth after all on an emergency basis. Why? Why, to pick up the learned Dr. Ramirez, who else? All because you couldn't wait to powwow with your Thargan friends. From this message it looks as though they've already left Holmen. Too bad, Doctor, since you managed to get the whole Solar government into the act. Earth just can't bear to be bypassed, can she? Any pretext will do to keep Rigel and Holmen tied to her apron strings. This insane caper you have forced me into has delayed the schedule two whole weeks. Do you understand? I'll arrive at Holmen *two weeks late for my wedding!*"

It was not final. It was *not* final. The wedding would not be between Lydia and Larsen. But this was like worrying about a coin lost in a holocaust. He *must* control himself if he expected to control the captain.

"But surely a message of explanation—"

"Yes, a message. A message capsule, to be precise, or do you in your wisdom know of a broadcast band that can outstrip an FTL ship? Such a message could have given notice, yes. But none was sent."

"I do not underst—"

"No, I didn't think that you did. It is too much to look for intelligence in a philosophical doctor. I'll put it into words that even you can grasp: no message was sent because *your Earth government branded your project TOP SECRET.*"

Of course. He had forgotten.

"Meanwhile," Larsen continued savagely, "I've left my bride standing at the altar without any explanation at all. She must believe that I have crashed in space. When she finds that I did not, she'll think . . . oh, God, she'll have to believe that I did not love her enough to be

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punctual. *Now* do you understand, Señor Doctor?"

Ramirez understood. Resolutely he looked at the situation from Larsen's point of view. No wonder the man had been upset, and angrier with every reminder. Larsen saw his passenger as the source of untold anguish to his loved one.

He could not be blamed. Nevertheless, the major shock was yet to come.

"I'm sorry, Capitan. But *you* are the one who does not understand."

Larsen jumped to his feet. "Get out!"

Ramirez saw that reason was not about to prevail; he abandoned it. In two steps he was at the captain's desk, standing a good two inches taller than Larsen's stocky frame. One experienced hand gripped the man's lapel.

"I listened to you, Larsen. Now you listen to me. This is important!"

Larsen's jaw dropped. Ramirez didn't give him a chance to speak. "I didn't come aboard as a tourist, Capitan. I was sent because there was a strong suspicion that the security of the colonies and perhaps of Earth herself is in danger from these Thargan guests of the Holmenians. You'd better bless the delay this detour of yours has caused, because that delay—and blind luck—have given us confirmation."

Larsen shrugged the hand away; Ramirez could feel the solid musculature underneath the dark blue uniform. "I hope this is good enough to keep you out of irons, Doctor," he muttered. He was going to listen now.

Ramirez sat on the desk, speaking intently. "The message, Larsen, the message. The Thargan capsule we intercepted. That tells the whole story."

The captain returned a blank stare. "They've bought some machinery from the Holmenians. What has that got to do with—"

"Machinery!" Ramirez exploded. "Great God, señor, no! Not machinery."

"Cybernetic units. Computers. Same thing."

"X-cybernetic units," Ramirez corrected. "I called this term *X* because there seems no exact equivalent in any Earth language I know. But if I were to attempt to translate it, the nearest I could come might be *bio*. *Bio*-cybernetic units. And the other word—'ngan'—may also be translated as 'person.' *Those are human beings they're talking about!*"

Larsen's face went white. "But the only planet they've visited—"

"Precisely, Capitan. Holmen. The Thargs have requited Holmen's hospitality by abducting the entire population!"

"Holmen!" Larsen unconsciously exhibited his own intellectual capacity by quoting verbatim from Ramirez's halting translation of the Thargan message. " 'The planet's entire unit supply was immobilized per schedule and has been transferred

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to ship's cargo holds.' The entire planet! Nine hundred people."

"And more."

"They wiped out the entire planet?"

"That we do not know, Capitan. 'Prime condition,' the message says. Let us hope the people are unharmed as yet." Ramirez fell silent, flexed his fingers thoughtfully and studied his square nails as he waited for the second shock to hit Larsen. It came. Ramirez closed one fist.

"Lydia! Oh, no, no! They've—"

Ramirez hit him, just hard enough to shake him free from hysteria. "Be thankful you *weren't* on schedule, Señor Capitan. You, too, would have been taken. Now, at least, we have some chance—"

Larsen's features cleared. Young, emotional he was; but Ramirez had counted on the fact that a lot of man went into the making of a captain. When Larsen spoke again his voice was under tight rein. "This ship—the *Moloch*—we must be very close to it, otherwise we could never have intercepted that capsule. We have its hypergeodesic—" His hand banged down on the intercom. "Jeffry!" he snapped. "Unlimber the emergency lasers and set 'em up for action. Pronto. Change course to track the source of that capsule we picked up. Put your men on full alert —NOW!"

Ramirez said: "Capitan, this is no war vessel. We can't—"

Larsen smiled mirthlessly. "It will do, Doctor, it will do. Surprise and an accurate beam—those can blast any ship from space."

"Capitan, you *cannot* risk the *Alpha*. If they blast us back—and we don't know the range of their immobilizer—then Earth would have no warning."

Larsen hesitated only a moment. "We'll ship Earth a capsule. All right, Doctor?"

Ramirez didn't bother reminding him of the security blackout. "But, even if we succeed in blasting them —we will have lost, Capitan. Consider: the . . . units . . . were transferred to their ship!"

This halted Larsen in mid stride. "I can't blast Lydia . . . I can't kill human beings. But we must do *something!*" For the first time Larsen turned directly to Ramirez for help. "What do we do?" He stared irrelevantly at a couple of old-fashioned copper coins in Ramirez's palm.

Ramirez, too, looked down at the coins. His mind was operating at full throttle. "There was a similar situation, almost, once . . ." he murmured. "The enemy is secure from our attack, one way or the other. And that message shows no mercy. If we let him go, the people of Holmen will certainly die. Or worse."

Larsen was incredulous. "A similar situation?"

"We have only one weapon: talk."

Larsen laughed harshly. "Is *that* the best idea you can come up with,

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Doctor? You are going to talk these murdering pirates into taking the Holmenians back to Holmen and turning them loose?"

"You have a better idea, then, Capitan?"

Slowly, Larsen shook his head. "It isn't possible," he said flatly.

"It worked once, in Juarez."

"Well, we have no choice. When do we leave?"

"We?"

"To visit this Pulguth Bax."

"We have no time to lose, Capitan. First we must send him a message that will cause him to pause and wait for us, before he accelerates faster than our power to overtake him . . ."

The alien craft loomed, a vast hole in the blue of hyperspace. The rendezvous would have been far more convenient, of course, in normal space; but the Thargs were traveling and the Earth ship, to parley, had to accommodate to the conditions prevailing. An hour later and the *Moloch* would have been unreachable.

An oblong opened in the surface; internal illumination spilled out. The two spacesuited figures hove to, slapped magnets against the hull and walked on in. The oblong closed; pressure built up. Presently they were admitted to the interior.

Ramirez set the example by removing his suit and laying it, together with an obvious sidearm concocted for the occasion, on the bench provided. Larsen reluctantly followed suit—or unsuit. They had agreed beforehand on the necessity of this little show; they had to give tangible evidence of their good faith by coming voluntarily and divesting themselves of weapons.

Only when they stood naked of armament did the Thargan escort appear. "We wish to meet with Captain Pulguth Bax of the *Moloch,*" Ramirez said boldly in English.

Light flashed. He knew they were being electronically searched for concealed weapons or other suspicious devices. The silent Thargs then led the way to an austere cabin in which a single massive individual stood. Round yellow eyes stared

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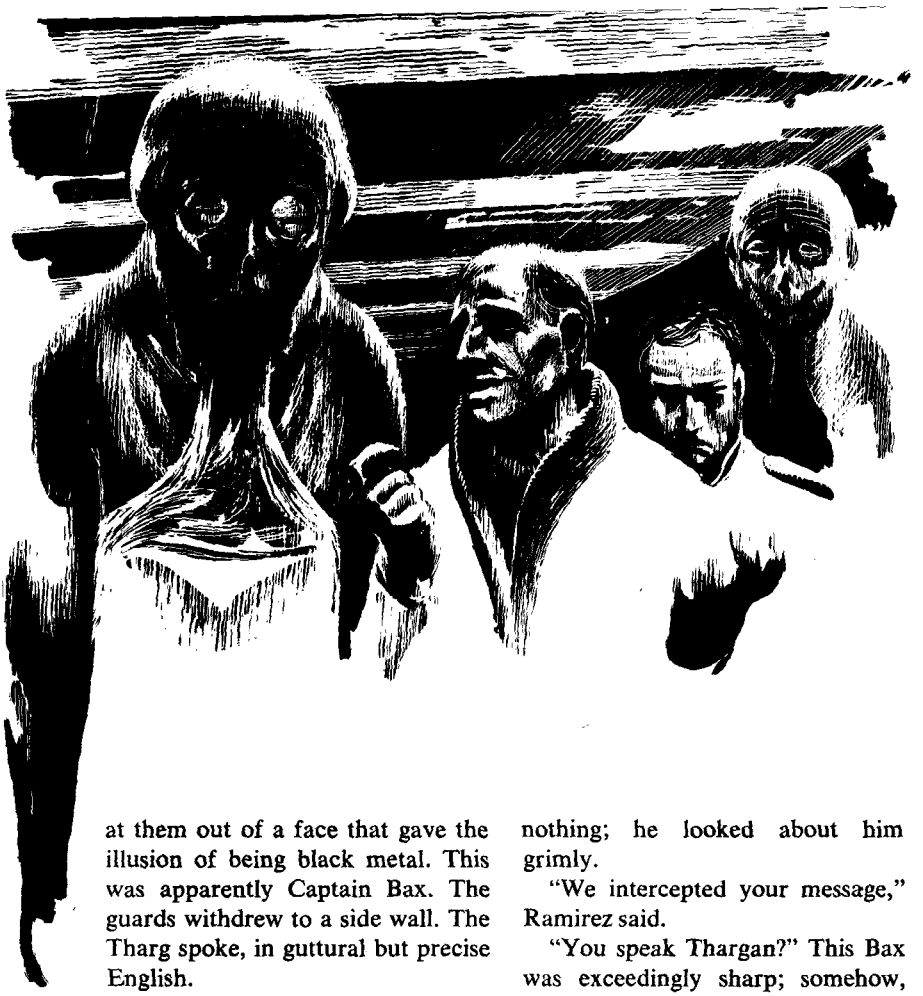

at them out of a face that gave the illusion of being black metal. This was apparently Captain Bax. The guards withdrew to a side wall. The Tharg spoke, in guttural but precise English.

"How did you know my name, my ship?"

First mistake. Ramirez would have to play this part straight and hope that it didn't cost him the one sure advantage he clung to: his knowledge of the Thargan language. His dictionary was phonetic; he *could* understand the spoken language as easily as the written, if he had time to ponder it. Larsen said nothing; he looked about him grimly.

"We intercepted your message," Ramirez said.

"You speak Thargan?" This Bax was exceedingly sharp; somehow, Ramirez hadn't counted on such alertness.

"Our machines were able to decode part of it," Ramirez lied.

Bax summoned four guards. "Take these two aliens to the galley and reduce their bodies to plasma," he said in Thargan.

"Wait!" Ramirez cried in alarm. "Aren't you even going to hear what we have to say?"

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Bax signaled and the guards stepped back. "One knows the language; the other does not," he said.

Second mistake. He had fallen into the trap; his alarm had betrayed to Bax that he understood Thargan. Bax had effectively stripped him of his advantage. Except—

Except for his background. And the gamble that the psychology of the Tharg was similar to that of Juarez's hoods.

"I am assuming," Ramirez said, sparring for time to think, "that your psychology is essentially similar to ours."

"It may be," Bax said. "Proceed."

Ramirez felt Larsen, beside him, let out his breath with relief. He himself felt none. Any major conjecture he might make could be in error. Then both their lives were forfeit, and Dios knew how many more.

"The officials on my home planet of Earth tend to . . . frown on the use of, er, bio-cybernetic units. Nevertheless, an industrial society such as ours has an ever increasing need for these. We, therefore, have the anomaly of a government that refuses to acknowledge the needs of its civilization."

The Tharg made a momentary quiver which seemed to be equivalent to a nod. Ramirez had won the first round—maybe. Now, if he could avoid any further blunders—

He continued with smooth insincerity: "Frankly, after I got the content of that message of yours that we intercepted I wanted to talk with you in person."

Bax looked bored. "About what?"

"As I said in my message to you, we might be able to do each other a favor. In our sector it has become virtually impossible for the honest entrepreneur to obtain sufficient units to supply the demand without encountering . . . harassment . . . by the authorities. For that reason I broke with the, uh organization handling these matters. But now I find you, who must have mastered your technology more efficiently than we. You are able to make do with an incredibly small number of units! We had never found it worth our time to harvest a population of Holmen's size, of less than one thousand; the cost of such a raid would hardly be recovered. Frankly, sir, I could make it worth your while for me to get back in the business once more. If you would share your secret with our technologists—show us how you are able to utilize single units where we would require two or more . . ."

Was he making sense to the Tharg, or did too much of the doubletalk show?

"Come," said the Thargan captain, and Ramirez let out his breath.

Dim corridors rang with their footsteps as Bax led the way to a balcony overlooking an extensive block of cages. There men, women

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and children were crowded together, prisoners. From what Ramirez could see of them at this distance they seemed unhurt except for dignity; there was a good bit of noise and a rising effluvium that spoke ill of Thargan sanitary facilities. The captives were obviously regarded as cattle. Beside him, Ramirez felt Larsen stiffen.

Ramirez worried anew about Larsen's stability. He would have preferred to come alone; but Larsen had exercised his captain's prerogative and insisted on coming. Lydia was somewhere in the depths of this hellship. Ramirez tried to put the thought aside to keep this knowledge from unnerving him. He was none too sure of his own stability should he set eyes on her in this place.

During the *Alpha One's* feverish pursuit of the Thargan craft Ramirez had instructed Larsen carefully. He had pointed out that the aliens could be expected to subject their visitors to revolting sights in order to provoke genuine reactions; but there had been little time to go into detail. To his relief, though Larsen whitened, he did not lose his self-control.

"I'm surprised you haven't processed them yet," Ramirez said to Bax. "We find it awkward if too much time elapses."

"There is your difficulty," Bax diagnosed. "You are in too much of a hurry to reduce them—as I was, before I learned this trade. You strip out the brain itself and ship only that, am I correct?"

"I'm no technician," Ramirez said, trying to avoid another trap. "I don't know just how far they actually cut it down now. But weight is a factor, and since the, ah, torsos are useless—"

"Field reduction is wasteful," Bax insisted. "Too crude. You discard the spinal cord, the neural endings, even the ganglia. Am I right?"

Numbly, Ramirez nodded. He dared not look at Larsen.

"In consequence, you have high losses from transinstallational debilitation, especially in hookups demanding precision and intelligence; your customer demands his money back. Am I right? Other units soon malfunction and go dead; your customer complains of high mortality. On our planet such defective units naturally command low value."

Ramirez's conjecture about the purpose of the "units" had been correct, then. The compact and efficient computers that are organic brains were used in Thargan machinery for control of complex automated processes. No wonder their technology was superior. How the transplants were made; how the brains, presumably conscious, were controlled, he did not care to speculate. But such practice could hardly be condoned by the great majority of the members of a civilized race. He was dealing with an unscrupulous private operator.

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Or was he? Was he committing the anthropomorphic fallacy of equating human ethical values with the ethics of an alien race? For that matter, even human ethical values had been far from uniform over the years. True, brain-transplant had always been outlawed; but only so far as the human genus was concerned. Human slavery had been the norm for more centuries than it had been proscribed. He needed more information, more time to think. Yet he must not, by remaining silent too long, give Bax any extra thinking time.

"If you have solved these problems—"

Bax was warming to his subject. "Central processing. There's your answer. Skilled technicians, proper facilities, unhurried reduction, and you can guarantee your client fully attentive and intelligent units."

—A large operator, with an organization such that it was possible for him to have central processing and send message capsules to his home base. Could he rule out the possibility that the Thargan government condoned or abetted Bax's activities?

"You have no trouble, then, with, uh, psychological resistance?"

"Shock collapse? We used to, until we found out how to maintain frontal lobe function. Cautery of the sleep centers before reduction is part of the answer. Thanks to that and to certain other pre-debilitative measures, we can now guarantee our clientele complete control of unitary awareness."

"Sounds risky."

"It works. Now, you will wish to know how we get maximum service per unit? Chemical processing of the original assembly. Takes more time, yes, to reduce the body to plasma, but our clients pay us for quality. The assembly must be removed from the vat and hung-out at precisely the right stage of vertebral softening. A skilled surgical technician then hooks out almost the entire central nervous system more or less intact. Hearing is conserved, eyes remain functional. Pain centers outside the brain itself can be instrumented for performance-quality control."

The room lurched and blurred. Ramirez tautened his grip on himself. "What about training?"

"Within hours after transplant many of our units are able to withstand instructional stimuli. At the center you have the services of a battery of experts—adapters, conditioners, instructors, programmers, standardizers, even depersonalizers for refractory cases—who know their jobs. The extra weight is small when you consider the superior product you obtain by shipping the entire assembly live."

Was the Tharg giving him his "answer," or was he leading up to some climactic pitfall? Ramirez looked steadily into Bax's yellow, catlike eyes; and could read nothing.

"Your claims impress me . . . if

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true. Even so, animate shipment presents so many practical hazards —feeding and cleaning and preventing loss of units through panic reactions. A number of ours will damage themselves beyond repair in irrational attempts at escape."

Bax led them through a short corridor into another chamber. One side was lined with what looked like drawers to some huge wall-filing cabinet or vault. On each wall was a small panel with a small opening. There was an acrid stench from the several sweating Thargs. They wore only yellow breech clouts and were shoving a boxlike apparatus into place at one end of the great cabin. "Here is our solution to that problem," Bax said. "Animate shipment is impractical. That is why we put them in phase two at our convenience."

Bax barked at three guards, who clomped out—to return moments later with a struggling Holmenian. "Observe."

Ramirez was glad that the man, involved in his desperate struggle, did not notice the only other human beings in the room—himself and Larsen.

He sensed rather than felt a movement from Larsen beside him. Dios, Larsen *must* hold now, or all was lost! He did, in spite of the man's noisy struggle as he was hauled to the box. Two Thargs held him while a third stripped away his shreds of clothing. Naked and struggling, the man was thrust feet first into the box, forcibly folded into fetal position, and jammed beneath a tight lid. The black container was exactly the right size; obviously it had been tailored to human specifications.

So far there seemed little point to this demonstration, unless this were a death box and Bax's intent was to shock him into another blunder. Could the man breathe? Ramirez realized his hands were sweating. He unclenched his fists and waited, hoping that the volatile Larsen would continue to hold firm.

A technician in a gray tunic spoke gutturally into the panel beside the box. Instantly a crane swung a square brass plate over the box—with impossible precision. Ramirez glanced at the control panel, which had not been touched. He noted a rounded recess in the panel. An eye? He felt a coldness in his spine. Bax, who had followed his glance, nodded and spoke to the panel. Instantly the wall beside the panel lighted up from inside. Transparent as glass, the wall revealed every detail of the thing within—a vertebrate brain half-submerged in some nutrient fluid, atop the pulsing network of an entire nervous system stretched across a frame that resembled a small loom.

"You see what correct processing can do? Of course that is a Thargan unit, but the pith is essentially identical to that of a man."

The brass plate settled down over the box in a kind of cap. The tech-

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nician stepped over to the box, ran wormlike fingers around the edge of the cap to test for tightness. He looked toward the panel and gave another order. The brain seemed to pulse. The cap lifted itself away, poised for later action.

Calmly, the Thargs in the yellow breech-clouts — slaves? — lifted away the lid. A metallic hand came down, sank its flexible claws into the air in the box. The hand heaved— and the man was lifted out, perfectly visible in a solid block of— something. One of the cabinet drawers opened. The claws sought it out without further guidance and deposited the block in it. At a word from the technician to another panel the drawer closed with a decisive click. Ramirez violently suppressed an urge to retch.

"Magnificent!" he exclaimed. "Instant stasis. That's your secret?"

"We believe in efficiency," said Bax smugly. Apparently they had passed this test. "Surely you are familiar with the technique?"

"We have a deep-freeze technique somewhat similar, but we never thought of applying it to field procurement. Your ingenuity does you great credit."

"Perhaps we could make an arrangement," Bax said. Ramirez's heart leaped. Had the Tharg finally taken the bait? Now it might be possible to find out for sure which side of Thargan law Bax operated on.

"We, too," Bax went on, "are hampered by elements in the Directorate who reject the only correct and permanent solution to the overpopulation problem. Even though our civilization's business would collapse without bio-cybernetics, there are endless hypocritical objections to the use of Thargan-derived units."

. . . So much objection, Ramirez felt surer now, that Bax, instead of raiding the Thargan slums, had come all the way to Holmen on the lookout for units of other species. He was an outlaw.

That would simplify things. You can't cheat an honest man. He must, somehow, use this as the key to his strategy. He pricked up his ears. Bax was putting out a second feeler.

"However, there is no specific law against using alien units."

"Ah. This is exactly what I had counted on." Ramirez tried to look and sound elated.

Encouraged, Bax continued. "It might be possible for us to provide you with a certain number of Thargan-derived units in stasis that your own administrators would not object to . . ."

"I think we could match that number with our own product," Ramirez said after an appropriate pause, "provided the matter were handled with, uh, discretion." He hesitated artfully. "My superiors would of course require a, er, contract, imprinted by both parties—"

The Tharg smiled. "A formal guideline? It could not be binding."

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"In the event of an unexpected change of personnel, some statement is necessary. From time to time the power structure in the organization shifts abruptly. The new . . . leader might not be privy to the details of the agreement."

Bax performed his nod. "Ah. I comprehend."

He should. Ramirez's slum experience had taught him that any criminal enterprise is governed by some variant of jungle law.

"It shall be done. But first—"

Something in the alien's manner alerted Ramirez. It was not over yet. Had he given himself away after all?

"The present shipment would not come under the agreement," Bax said. "But there may be a few additional suggestions we can make for the effective processing of units. For instance, the procedure for the two sexes is not identical. Allow me to point out the nuances."

"Very considerate," Ramirez said, smelling rat strongly now. He was very sure that the next few minutes were not going to be pleasant.

He was right. Bax had a major trump and he played it now, with the timing of a connoisseur. The demonstrator model was not a man.

The figure of the girl between the still Thargan guards seemed to brighten as his vision centered on her, while the busy work room dimmed. Every object, everything, faded from his awareness, except for her. The grim aliens, the massive blackship receded into nothing.

She was halfway to the platform, her tumbled ringlets coming barely to the chest of the Thargan guard who, at Bax's signal, now struck her forward unceremoniously. She half fell, caught herself on a stanchion. She started to rise, then froze. She was staring into the lighted Thargan unit. The guard jerked her to her feet.

Some part of him must not founder . . . One of her little green shoes was missing, he noted irrelevantly.

Some part of him knew that above all he must not betray what he felt now; it held his face blandly impassive while his mind, like a lone swimmer caught up in a black rip-tide, tried to cope. Too late, he remembered Larsen and shot out a restraining hand.

Larsen leaped toward the girl as a cry broke from him. "Lydia!"

She turned slowly, her blue eyes blinking in the light glaring overhead, as though she had just been brought out from a dark room. Her face was pallid, quite devoid of feminine retouchments, and there was a dark bruise on one side of her tender throat. Her dress, of something that had once been soft and yellow, was soiled and torn, held together at one side by a matted strand of green netting that must once have served to subdue the wayward ringlets above. A leg was gashed above the bare foot.

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As her eyes found Larsen she straightened. She drew herself up like a daffodil, thought Ramirez, somewhere almost below the crystallizing black awareness that was disposing its forces for action, a daffodil sprung upright in spite of being trampled on. He knew pain—

"Eric!"

They stood together, Eric and she, his tense arms around her quivering body, no longer aware of the manner of their meeting or of the very tenuous endurance of it. Dry-eyed, they kissed, and spun together in the center of their private universe—and fell apart, strengthless, in the ebon grip that lifted and pulled them in opposite directions.

—But there was no time left now for pain. *How had Bax known?*

The picture. She would have a disk, Ramirez realized now, feverishly, or a locket, similar to Larsen's, containing his picture. Bax, covering all bets, would have ordered a roundup of such trinkets at first contact from the *Alpha One;* and so Bax had come by the bit of knowledge that voided at a single stroke Ramirez's complex stratagems. Larsen's emotional display was final evidence that the prisoners were not mere merchandise to the *Moloch's* visitors. Ramirez had mobilized his will for action. Yet no conceivable action could retrieve Lydia's life now, or the lives of her people. Still Ramirez, desperate and empty now of stratagem, looked to Larsen for help.

But there was no help there. Larsen was fighting uselessly, while Lydia contended with two Thargs. Her ragged dress was torn open in the struggle. Larsen cried out and almost broke away from his captors, but they quickly cut him off and dragged him back; but not so quickly or so roughly as to damage his commercial value by striking his head. Larsen's voice cried out to him, this time.

"Ramirez, for God's sake, stop them! Help us!"

At these words, Lydia looked about wildly, as the Thargs pinioned her wrists behind her. Her eyes found Ramirez; she seemed aware of his presence for the first time.

"Manuel Ramirez! Help us!"

The Thargs paused as Ramirez strode forward authoritatively. This gave him a few more instants for thinking; what he would do next he did not know—except that he must appear quite calm. With clinical detachment he looked the girl up and down; then turned to give the blond man an even colder scrutiny. Finally he turned to Bax.

"This unit is not part of your shipment," he said curtly, indicating Larsen.

Bax laughed.

"Moreover, thanks to your heavy-handed bungling, he is of no further use to me. Therefore I shall expect you to provide me with adequate compensation."

Bax—surprised?—hesitated. The

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silence lengthened, and lengthened again while Ramirez relaxed, a picture of expectant aplomb as he withstood Bax's speculative stare. Finally Bax quivered tentative agreement. "What do you regard as adequate?"

Ramirez looked significantly at the thing in the transparent panel.

Bax nodded thoughtfully. "There is a spare. I think we might arrange . . ."

"Ramirez, what are you saying—!" Larsen shouted. "To save yourself you'd sell us all . . ."

Larsen's words were cut off as one of the Thargs folded him with an expert jab to the solar plexus. Almost in a breath Larsen was positioned. The brass plate swung over, descended in silence. On signal, the man's still body was stacked in a drawer, beside the other. A sound came from Lydia as she watched, that was something between a moan and a sob. The Thargs turned their ministrations upon her.

She did not resist now. She seemed to have withdrawn into a world of her own as they stripped her. Only as they were about to position her did she turn her eyes to Ramirez. Her lips moved, once, but no sound came out.

Ramirez's face was ashen. He turned away. Then the sound came out.

"Traitor!" Lydia's hoarse cry echoed faintly through the metal corridors. "Traitor, traitor, trait—!"

A chill numbness pervaded Ramirez. He ignored the cry, clenched his fist about the coppers in his pocket as her cry was cut off. "Proceed," he said to Bax. The hand in his pocket was sticky with blood.

Bax proceeded.

His heart pounded like a schoolboy's as he stood in the short white corridor and knocked on the door that he knew Lydia was behind. He had wanted to be with her when she woke, but the Thargan technicians had forbidden his excited presence; had in fact, shoved him out bodily. But by now they must have her revivified. Ramirez was about to push open the door when it was opened for him by a square-faced female Thargan technician, who nodded him in without words.

"Lydia?"

She was draped in something white and close-fitting and she was seated on a sort of chair. She looked wildly after the departing technicians and rose, obviously agitated.

For several moments they eyed each other in silence. Some instinct warned him to wait for her to speak.

"Ramirez. Manuel Ramirez." She seemed unable to go on. Her throat moved once, convulsively, and then she seemed more mistress of herself. She spoke in strained, artificial tones. "It is good to see a human face, even . . . even here. I have been thinking of the last things I can remember. I sincerely hope that we misjudged you, Eric and I."

Sincerely hoped . . . we . . .

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She was, at his request, the first of the Holmenians to be revivified. He looked about now at the stacked boxes with their gruesome contents. These—and the female Thargan technicians—would be the first things to meet her eyes when she had opened them. How could she, then, but believe Larsen's version of his motives? Yet, believing this, she spoke to him.

Clearly, she was stalling for time and for information.

Well, he'd give her the information, so that they could get on to the important part. Dios, she must not go on thinking . . .! Yet she looked at him so oddly a gray doubt nibbled at him. With anyone else a few swift words would get the information out of the way; with her, he felt oddly tongue-tied and helpless. He strode to her and took her white hands in his brown ones. They were ice-cold.

"Thank you for your confidence, madon . . . Señorita Lydia."

"Where is Eric?" She spoke quietly, but Ramirez felt she was fighting down hysteria.

"Here, Señorita." At the surprise and skepticism written in her face, he added: "In this very building—in another room such as this. He, too, will be awake soon and you may then go to him. For now—you have some questions?"

Relief shone in her face—and doubt. She said coldly, "The first one is, why did Bax let you go free—if he did?"

So that was it, then. "I thought we all were lost when Bax's guards brought you out, Señorita. But I remembered the alley—"

"Alley?"

"In Juarez—back on Earth, Señorita. I was a young man, full with hope, but trapped in an alley. The hombres—it seems so long ago—were intent on robbing me and taking my life. I had no defense. Yet I escaped whole and with my solars. I had to hope that by some such scheme we might be able to carry out the bluff against Señor Bax."

Lydia looked about at the stacked boxes, five high against all four walls, of perfectly visible immobilized human beings. Her Holmenian friends, neighbors, acquaintances, relatives. The people she had grown up among. Her body shook once, violently. "So you saved yourself then," she said, "as you save yourself now."

"A trick, nothing more. The hoodlums of Juarez—I had to put them off balance. I stepped right up and—panhandled, I believe is the word? I panhandled them for a bottle of tequila."

"And—?" asked Lydia as he paused. She was, he saw, interested in spite of herself.

"They were so surprised that they didn't even bother to search me."

"They simply coughed up the money?"

Ramirez nodded, trying to appear oblivious of the derision in her tones. His hand went to his pocket

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to bring out the coins. "I've kept these with me since that day—as small trophies, you might say, and a lesson."

She looked at the coppers in his palm but did not touch them. "And you panhandled Bax for tequila, Señor Ramirez?"

Diablo, why should her mockery tongue-tie him?

"I'm afraid I did, Señorita, in effect. I told him that the, uh, subservient class was distinguished by its yellow hair; that his careless handling of the sexes had ruined my perfectly good valet."

"Valet? *Eric?*"

"It was a thin story, but the best I could come up with at that moment. I demanded reimbursement."

"Naturally, he believed you . . ."

"He was too surprised *not* to believe," Ramirez persisted. "He had outsmarted me at every turn. He had no respect for my intelligence. He had to assume that I was sincere. It never occurred to him that one would have the audacity, otherwise, to make such a demand. He had to assume, therefore, that my entire offer was on the level."

"Offer?"

Ramirez explained.

"But your offer wasn't on the level, of course."

Ramirez ignored her irony. "Such a deal—Earthmen for Thargs—would be most convenient in his business, you see, and Bax was carried away by his own greed. He finally signed the contract I had brought with me. If I was so easy to outsmart, the connection could be most profitable to him. I returned to the ship—"

"To the *Alpha One?* You expect me to believe that Eric's crew—"

"His crew were fanatically faithful to their captain, Señorita Lydia. I spent, as it happened, some considerable time in the *Alpha's* air lock, explaining to them my failure to bring him back with me from the Thargan vessel. But once they became convinced—"

"Oh, you did convince them of your honorable intentions?"

"It was not easy, Señorita. The useless contract Bax had signed made no impression on them. The convincer was the Thargan unit I managed to talk Bax out of. I let them look into the transparent side . . . *Then* they listened. They raided the cargo and built for me the very biggest message capsule you could imagine!"

"A message capsule? To send to Earth?"

"To send to Tharg—"

"And the *Alpha One's* crew were taken in by—? I mean, what did you put in such a huge capsule—a bomb?"

"Very close. I put the Thargan unit in it, and the contract document bearing Bax's seal."

She stared at him. "That fixed up everything, of course," she said tonelessly.

"But, of course, Señorita Lydia—though I confess to you that this

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was the hardest wait of my life—the wait for acceptance at the University was, beside this, nothing! Tharg is a civilized interstellar culture, that much is plain. It did not achieve this status by tolerating blatant lawless activity. The moment my message to them presented incontrovertible proof—"

"And so you waited all this time, Señor Ramirez? Where?"

"Why, here, Señorita. I waited here—with what apprehension you may imagine—for the Thargan Directorate's reply. Meanwhile we cleaned up the mess here on Holmen, the *Alpha One's* crewmen . . ."

"*Holmen?* Did you say we're on *Holmen?*"

"But, of course, Señorita. I thought you underst . . . but of course!" He cursed his own ineptness—with her alone, of all persons. "You believed we were at Bax's hideout—"

He didn't quite see her come—or maybe he had moved toward her. She was there, facing him, one shoulder bare. Her hands rested softly on his shoulder and the faint aroma of her person invaded his senses. Suddenly she laughed—a laugh of sheer relief and release, which continued until her whole body shook. She kissed his face over and over, laughing and crying at once, as a child would who had expected punishment and received instead a wanted present. He steadied her with a hand to her elbow. He kissed the warm nape of her neck as the laughter began to subside. She looked at him out of starry eyes.

"Manuel Ramirez, you are without doubt the most remarkable—"

She did not have a chance to finish the sentence, because he pulled her to him. She responded, no longer as a child, but with passionate abandon as he pressed his lips on hers.

From behind him there was a coughing grunt, followed by several rapid words in Thargan. Unconsciously Ramirez tightened his grip and silently raged at the uniformed Tharg, execrating his entire tribe for this untimely interruption. Lydia instantly stiffened in his arms. She jerked back. Her eyes opened, and opened wider as she stared, stunned, at the tall Tharg standing there eyeing them with open curiosity. Ramirez turned on him and spoke two words. The Tharg performed a shrug reminiscent of Bax's and retired to one side of the room; but he did not go out.

Lydia's eyes blazed with suspicion. She backed away again as Ramirez stepped toward her. "You lied! You lied to me!"

So she still believed what she had believed at the start.

"You think I could lie—to you?"

"Why not? You lied to the hoods of Juarez to save your skin. You yourself said that you lied to Bax. And you have saved your skin, so far."

"I . . . I—" Ramirez was, for once, at a loss for words.

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"So you sent some capsule straight to Tharg, you said, and not only straight to Tharg—location unknown—but straight to the top authorities of Tharg." Her eyes were blue steel. "You must have the devil's own talent in your tongue for me to have believed that for an instant."

"Lydia, I—"

"Just what did that alien say to you, Señor Ramirez?"

"I am to represent Earth at Tharg, Señorita Lydia. A capsule from Earth signed by the Solar President authorizes and commands this. This . . . er, man . . . is a messenger from the Thargan ship's capitan."

"What Thargan ship? We are on Holmen—you said."

"Why, the one that has returned to Holmen with the people Bax abducted, including yourself, Señorita. It brought also restorative apparatus and personnel qualified to operate it. It brought apologies from the Thargan directorate—"

"What did this alien say to you?" Lydia demanded again.

"He asked whether the Thargan captain should prepare quarters for two or for one."

"I see." He could not tell from her tone whether or not she believed him. "And you told him—?"

"I told him to wait."

"I see," she said again. "Is this a proposal, Manuel?" Her voice was flat and impersonal and her eyes were hard.

"No."

"Oh?" She looked about her at the still forms in the boxes, at the interested Tharg stationed by the wall. A shiver passed through her, but she spoke with cold sarcasm. "Then just what was it that you had in mind?"

He took her defiant face between his hands.

"Lydia, I have loved you from the first instant I set eyes upon you, and I want you for my wife, yes. But I shall not propose. Not while your eyes tell me that you still half-believe that I sold out the human race!"

She studied his face. "I could never be your wife, believing that," she said quietly. Some of the anger seemed to have gone out of her. She put her hands over his as he still held her. She seemed still fighting for calmness. His fingers tightened on her face.

"And you need proof that I am *not* guilty of saving my skin at the expense of the Holmenians . . .? You can, of course, find this proof just by stepping through that door. But you cannot accept here and now the unsupported word of Manuel Ramirez, is that it?"

As he waited in silence, Lydia's face became a curious study in embarrassment and compassion; but she spoke forthrightly. "When I think of what you've saved me from —and Eric—and all of us—if this is true, I'm ashamed to doubt. But Manuel, both of us were carried

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away just now. You fell in love with a pretty face and figure, but you don't really know me, nor I you. We both know, just the same, that you would not be content—"

"Don't decide now. I will stay here."

"And then, aren't you forgetting Eric?"

The hell with Eric! "But suppose we had met first, Lydia, you and I? What then?"

"But we didn't, Manuel, so we won't suppose anything of the sort."

"Dios!" he burst out. "A senseless accident of timing—blind chance—and must we tamely run our lives just so, on account of this? No! This I will not accept. I will stay."

"You have an assignment on Tharg, Manuel, remember? And all this makes more sense than we want to think. Would you be content to spend the rest of your life on Holmen?"

"If this is where you—"

"Holmen is where I was born, where I grew up. I have been educated for Holmen. I was not chosen at random; I was sent to Earth, to the University, by my own people here, at great expense, in the expectation that I would return with knowledge that can be used here. They knew perfectly well I would not fail them. Eric understands this; he also comes from a frontier planet. Holmen will be our home. Or at least we planned . . ." Her voice trailed off under Ramirez's intent gaze.

"I will stay!" he repeated.

"Was that the purpose of *your* education, your education to be contact man from Earth with the alien race we knew would be encountered—to spend your life on this remote pioneer planet? We don't even know each other, Manuel," she said again, against his silence. "I'm sorry. I'm ashamed. But I do need that proof you spoke of. I will believe you when I see Eric alive and well. I must see him—now!"

"You shall." He released her and nodded toward the door through which he had entered. "Lydia, wait!"

Halfway down the corridor, she stopped.

"So our meeting has changed nothing for you, Lydia?"

She stood very still. Presently she turned, slowly, and faced him as he stepped toward her. "Don't use it against me, Manuel, your talent." Her eyes were luminous—and unreadable. "I'm his mate."

Larsen caught up with Ramirez that night, at the bottom of the ramp that led into the great Thargan starship. "In all the excitement and confusion and congratulations here today I was afraid I wouldn't get to see you alone to thank you personally before you leave. . . . That capsule. I understand that you must have sent it to Acrux. I also understand that the prisoners in stasis—including Lydia and myself—were piloted back by official representatives of the Thargan Directorate for

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this revivification today on Holmen. What bothers me is this: That original capsule was addressed to the outlaws and would have landed in their lap; your capsule didn't. Why?"

"Capitan, our message was not addressed to them. We triggered it with an amplification system that the authorities were bound to notice and intercept. That, of course, was the finish for Bax. His ship, arriving soon after, was impounded, his base cleaned out. Bax and his cohorts were put on trial for cybernetic murder and attempted genocide. The Thargan Directorate now wishes to establish friendly relations with Earth—"

Larsen looked at him with admiration. "So, out of such an unpromising beginning you've managed to establish friendly relations between Earth and Tharg." He clapped a hand on Ramirez's shoulder and walked with him up the ramp. "Also, one fast-talking xenologist promoted to Terran ambassador to Tharg, I hear. Ramirez, what a performance!"

If you only knew, Ramirez thought, glad for the moment that the man had not known about his own involvement with Lydia. He managed a grin.

"Señor, I'm just a panhandler at heart," he said modestly.

He hoped that in the years to come he would be glad that he had not panhandled that which could never rightfully belong to him. ■

IN TIMES TO COME

Next month's issue will, of course, be a very special number. As you already know if you've read the item on p. 162, we will have sixteen additional pages of text—and a 60¢ cover price.

The cover next month is by John Schoenherr and shows our mutual friend, Master Sean O Lochlainn, in the somewhat embarrassing—but for a master sorcerer naturally temporary—position of being a prisoner in the Tower of London.

Randall Garrett's Lord Darcy and Company are back with us in their alternate history world of 1966 wherein science didn't get started along the lines of physical objective experiment, but instead along the laws of subjective phenomenon—what we know very favorably as magic.

It is the first of four parts of a novel titled "Too Many Magicians"—which, like too many cooks, can get things badly mixed up. When a top-notch magician is murdered in his locked and sealed hotel room while attending an International Convention of Witches, Sorcerers and Healers—there are indeed too many magicians to make a solution either clear or easily arrived at. How could a black magician operate in a hotel full of master sorcerers without being detected instantly? Of course, just as a scientist would be utterly baffled by non-science—think how confusing it will be to a magically oriented culture when faced with non-magic. THE EDITOR.

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The Signals

FRANCIS A. CARTIER

Kelly Freas

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It is one of the most elementary rules of scientific inquiry that, if you don't know exactly what you are looking for, you may not know when you have found it.

Dr. Raymond Ward slouched against the cool concrete doorframe of the moonlit control house. Occasionally puffing on his pipe, he gazed wearily at the immense crater, its floor latticed with steel, that some of his staff had once called the Star Bowl. Now the name seemed affected and precious. For nineteen years, Ward had been Assistant Director, then Director, of the stellar listening project, and he was about fed up with it. There were so many other, more productive areas of space electronics that he would prefer to be working in. Certainly, the project had intrigued him at first. Watching them build the great crater antenna system, nearly half a mile across, had fascinated him. The prospect of intercepting intelligent messages from space was truly exciting then, and his peculiar combination of talents in satellite tracking and mechanical translation seemed to make him uniquely qualified for the project. His year of experience in Audio with the porpoise research hadn't hurt him either. What an opportunity for fame! To find, record, and interpret the first signal from outer space!

But no man's patience is inexhaustible. Even a dedicated scientist needs some occasional reward, some reinforcement for his attempts. Otherwise, as even the freshman psychology student knows, the effort wanes and finally ceases.

It was Ward's enthusiasm that had kept the expensive operation going this long. But in the past few years, the turnover in personnel had been running as high as fifty per cent. Not one of his original staff remained today. And now Ward himself, going on fifty, had run out of ideas for expanding or narrowing the search. Even Ward had stopped trying to find new ways of discovering something meaningful in the mountains of data that had been collected. A whole career of brilliant sleuthing and tedious tabulation had produced nothing.

Ward was tired and frustrated. Worse yet, he was bored. His shoulders slumped as he stared at the vast antenna and realized that his predominant feeling at the moment was guilt. And the guilt was of his feeling that he ought to quit.

"Well," said Zrsk thoughtfully, offering his assistant a sniff from his inhaler, "the system 7M648

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still seems to me to have the greatest possibilities. Its sun is within limits for radiation and there is a good range of planetary characteristics. One of them should show life. Furthermore, there is that unique planet with a satellite revolving in the unnatural direction. Right?" The final intonation was the one for a rhetorical question to which the speaker expects some reply.

"Yes, sir, the sixth planet," said the assistant. "The one with the ring and the nine satellites looks good." He declined the inhaler politely. He was too interested to want to depress his senses.

"The ring is unusual, of course, but not unique. I am more impressed by the satellite that orbits counter to the direction of rotation of the planet. A sure sign that it is not natural."

"Of course," said the assistant, but with the polite intonation of slight doubt. Then, using the intonation of self-disparagement, "However, I would favor one of the planets closer to the sun—perhaps the reddish fourth one."

Zrsk grunted, his accent encouraging the younger to speculate further. Thus emboldened, the assistant continued. "It is strange that we have not contacted *someone* in that system," he said. "Do you suppose our signals are still too fast? In our own history, if I remember correctly, the early ones had only the cutaneous-pressure communication, which must have been quite a bit slower than our present-day communication."

"Yes, that's true," said Zrsk. "It took them a word per revolution or more, whereas we can easily converse at the rate of twenty or even thirty words for every circuit around our sun."

"What," asked the assistant, using the intonation of honest inquiry, "is our present signal rate to this system 7M648?"

"Much less. Much less. It is a child's rate. It averages about two or three binary digits of information per revolution."

The assistant hummed the intonation of bewilderment, then said, "Revolutions of our planet or of sixth planet 7M648, sir?"

"They are about the same," said Zrsk. "That is another reason, by the way, for favoring the sixth planet over the others."

"Well, then," said the assistant, "the signals cannot be too fast. Do you think they might be too . . ."

"We have been trying for two thousand six hundred revolutions, now," said Zrsk with sudden decisiveness. "Let us try another direction."

"Yes, sir," said the assistant, reaching for the controls.

Oer was talking in words again, showing off his postgraduate education. If he would only get back to talking in digits like any respectable and properly humble scientist,

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EEal thought, they would all feel more comfortable. However, as chairman, he could not let such a challenge go unnoticed and so he replied in words, trying to sound casual but hardly concealing a note of annoyance. "We have been meeting now since First Meal and have come to no conclusions," he said. "Shall we discontinue the signals or keep trying?"

Oer levitated his calculator to be recognized yet again.

"Oer," said the chairman dispiritedly. He was rather disappointed that the other six had remained so quiet.

"Sir Chairman," said Oer in his maddeningly deliberate articulation, "we have, for the past *seventy years*, gradually reduced the complexity of our messages. Now, we have reached the *ultimate* simplicity, and have been broadcasting that signal *continuously*, for nearly *eleven* of those years. It is a mathematically *primitive* signal. If it is not being understood as a signal, then there must be *no* other intelligent life, or they have no capacity for transmission of a reply. I say we should *give up*."

Chairman EEal looked around the group. There was silence. He was preparing to speak when he noticed old Aom's calculator rise a modest tentacle-width above the conference table. Aom was not always very bright, but it would be good to hear someone speak in normal digits for a while.

But the old one disappointed him. "I think, I think," stammered Aom, searching his ancient memories for the academic words, "I have a . . . question. There are . . . is, I mean . . . so much signals of a *natural* nature . . . I mean, radiations from stars. Other minds, how would they know *our* signals are a message?"

It was a childish question, childishly asked, and EEal was sorry that he had not overlooked Aom's almost imperceptible bid for recognition. "Let me explain," he said softly. "We always send a clearly *un*natural signal—one that will stand out against the background of natural electromagnetic phenomena. We have assumed that if there are other intelligent beings in the galaxy, they would be capable of recognizing simple numerical concepts."

"By definition!" said Ialr pompously. For this, his sole contribution to the meeting, he received a reproving glare from Chairman EEal, whose patience was running out.

"Obviously," EEal continued, "mathematics is a built-in common denominator of the entire universe, so it is only logical that our message should be a mathematical one."

"What, then, are we sending now?" asked Aom, apparently unaware of the exaggerated looks of boredom from several of the others.

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Oer's calculator shot up off the table to eye level. EEal would have preferred to continue the explanation himself, but he could not justifiably refuse to see such a flagrant bid. Almost without waiting for EEal's nod, Oer let the calculator drop noisily and turned to Aom as though to finish the discussion once and for all. "We are sending," he said in a tone usually reserved only for children, "the *most* unnatural and the *most fundamental* concept in mathematics, the *one* concept from which all mathematics arises, and upon which all mathematical order is *ultimately based.*"

"Ah!" said Aom, looking pleased with himself, "Zero!"

EEal had a momentary feeling of revulsion at such senility, but Aom was a gentle being and often provided the only calm voice in a stormy argument. With some effort, EEal kept his patience.

"No, Aom," he said smoothly. "How could we possibly send such a message? No. As you know, all natural signals, having natural causes, show patterns when properly analyzed. We are sending an absolutely *perfect* random series."

"Move we *suspend* the *operation,*" said Oer loudly without even levitating his calculator.

"Objections?" asked EEal. Not a calculator rose.

Ward knocked his pipe out against the concrete doorframe of the control house and turned to go back inside. He was about to step over the threshold, eyes cast down, when O'Brien burst out, colliding squarely with him. As Ward stumbled back, the young man clutched at his arm, gasping with excitement.

"Dr. Ward!" he choked out. "They've started! I'm getting something! I can't make it out but—"

Ward started to push past O'Brien into the control house, but the boy still clung to him. "Obie!" he snapped at him, shaking O'Brien's hands off his arm. "Started what? Let me in there!"

For a moment, they both tried to enter the narrow space at once, then Ward pushed himself ahead, ran down the narrow corridor to the control room, spun himself through the door and stopped cold, all his senses sharpened as he scanned the instruments and listened.

There was nothing on the speaker but the usual white noise. Nothing on the scope. The computer was still in stand-by mode; it had not been triggered. Miss Harris was sitting bolt upright at her monitor, staring at it with a frightened expression. "Whathaveyougot?" said Ward.

"*I* haven't *anything,*" she said in a strained voice. "Obie just yelled 'That's it!' Then he jumped up and ran out." She looked at Obie, still in the doorway.

"You didn't hear anything?" asked Ward.

"No."

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"See anything?" persisted Ward.

"Nothing at all."

"But Obie did?"

Miss Harris didn't answer, just stared quizzically at O'Brien. "O.K.," said Ward, "get the auxiliary recorder going and then let's play this tape and see what we've got." As they busied themselves with the recorders, Ward thought back over the many false alarms of the past nineteen years. Would this turn out the same way? For several moments he delayed asking O'Brien about it for fear he would get the same garbled answer as from the others, but he could not hold the questions in for long. "What was it, Obie?" he asked without looking away from the recorder.

"I'm not sure. I don't know. I just suddenly heard—Or, that is—It was the beginning of a message."

"In English?" Ward's shoulder muscles tightened as he waited for the reply.

"Yes," Obie said quickly. There was a pause. Then, quietly and thoughtfully, "No." Another pause. "Yes. It was." O'Brien dropped heavily into his swivel chair. "Let me think. I was sitting here at my monitor. I had just adjusted the frequency according to the schedule. It's still set the same way. Something started coming through. There was the word *earth,*" and then, his face contorted with concentration, "I think."

Ward's shoulders slumped as he prepared to play the tape back. There would be nothing on it.

Two hours later, after several replayings, Ward put the computer back on stand-by mode, returned the recorder to antenna duty, and wearily eased himself into his chair. There was nothing on the tape. O'Brien, like the four others before him—or was it five?—had obviously fallen victim to the boredom and the unrelenting pressure of concentrated waiting. It was the same old pattern: late in the shift when they were tired and their resistance was low, and always after several years of listening, straining, hoping, trying, trying, trying. It was the young ones who were most susceptible, and usually the girls. But Obie was a sensitive, emotional type. Well, he'd have to let Obie go, too. He'd wait a decent period, then use the excuse of reducing the staff. He'd try to find a good job for him. Some of his Air Force friends might be able to help there. No point in saying anything about this, either. It would just make a bad mark on a good man's record.

The strength of 778's thought was so strong that 842 turned to look across the room at him. "I know," he thought to 778, "it's frustrating, isn't it. But there just *has* to be a way to get through, perhaps even to Ward himself. We'll try him again. If only we knew what all that machinery of his is for—" ■

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AN OUNCE OF DISSENSION

MARTIN LORAN

Kelly Freas

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A librarian seems an odd sort to raise general hallelujah and trouble—but the librarian was a little special, and his library a highly dynamic type. Very dynamic!

Stephen Quist switched on the last of the transparencies and began listing details in the book before him.

7. General view, inhabitant Dubhe IV. Aquatic, tentacular. Classification 6—B—114p. Social structure . . .

The statistics went on for another eight lines. As he wrote, the green eyes looked down at him in a long frozen stare. It was a three-dimensional image, and a convincing one. Most men might have felt uneasy with such a creature watching them, even as a mere photograph, but not Quist. He had seen every imaginable type of life, experienced every possible biological permutation. There was no being in the whole huge bestiary of the universe weird enough to surprise a Librarian.

He noted down the last row of figures in his neat round hand, put the quill pen into the ink pot and leaned back. His muscles ached with the strain of an hour spent painstakingly writing by hand, but he didn't mind that. He could have used a voicewriter or even had all the data processed and filed automatically, but there was something particularly satisfying about having done it himself.

The ship trembled slightly as one of the ion jets made a slight adjustment in its course, and the feather of his pen quivered briefly. Quist smiled, glancing down at the ink-stained first finger of his right hand. If the Controller could see him now! There would be a lecture for him, at the very least—perhaps a fine. On Earth they were very sensitive about what they chose to call "reversion." Would it help, Quist wondered, to explain that of all the writing implements available only the natural quill pen worked efficiently in null-gravity? He decided that it would not.

The heads of the Library Service on Earth had very little practical experience of spaceship life, and the Rule Book was written accordingly. For the first few months most Junior Librarians kept to the rules. They got up according to the book, catalogued and filed and serviced the machines according to the book. In the "afternoon" they followed one of the approved study courses and boned up on something interesting like "Tensor Mechanics" or "Ancient History" (Earth). Then, at

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the proper time according to the book, they went to bed. Often they didn't even dare to clear the viewport and look out at the stars unless the book told them to.

Naturally the system never lasted long, though as far as Quist or any of the other Librarians were aware none of the Earth Controllers knew this. Or perhaps they knew but didn't really care. It wasn't important. What was important was that the Librarians were allowed to handle their lives in their own way. They could play chess with the computer, or read, or just sleep. They could get drunk, read pornographic novels—or write them, if they wanted to. A few, like Quist, could spend their time picking up odd skills and bits of knowledge, such as handwriting, the only noticeable quality of which was that they were engagingly useless. Under these conditions, it wasn't at all a bad life.

Quist boosted himself out of the chair and swam for the hand grip placed on the ceiling above his chair. There was no need to be on null-gravity. The twist of a knob and he could walk about as naturally as he did on Earth. But there was something particularly enjoyable in the sensation of floating. At the end of every trip, in the first dreadful days of readjustment to gravity, he made a resolution to act in future like a sensible adult human, and for the first few days of a new voyage he usually kept to it, clomping righteously around the ship, feeling glum and very clumsy. On the third or fourth day, he woke, reached muzzily for the hand grip, jerked, and landed on the floor with a bone-cracking thud. From then on, it was null-gravity until the last day in space.

The transparency was still projected on the screen. Hovering in the air before the image, he examined it critically. It was, he thought, exceedingly horrible—and yet, intellectually, he could find quite a few points worthy of praise. Those eyes, for instance. They had the melancholy wetness of a spaniel he had owned once, as a child. And the skin looked remarkably supple, like good synthetic leather. One might almost . . .

"Bookworm," he called out.

There was no answer.

Quist boosted himself to the port wall and took a heavy volume from the thousands that covered it. It was a book of Carlyle's essays. He had never liked Carlyle. Bracing himself against the wall he took aim and hurled the heavy volume at the panel of the computer whose banks occupied the greater part of the ship's mass. He had thrown things at the computer before and knew just where to aim. The book sailed cleanly to its target and crashed into the machine in precisely the right place, just below the embossed legend "Bookworm, Mark 18". The machine hiccuped once and its lights came on.

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"Is there something wrong with your audio circuits again?" Quist asked.

The machine buzzed for a moment, then spoke.

"Sorry, Quist. I was thinking of something else."

The Librarian wondered whether it had been a good idea to give the Bookworm such a strikingly academic voice. It always reminded him of an absentminded bespectacled professor who had taught him Ancient English back in University. But it fitted the Bookworm's rather vague "personality" and, in a way, that was important. It was better not to be reminded too often that the only other voice you heard for most of the trip was that of a machine and not another human being. He looked again at the transparency of the alien from Dubhe IV.

"Has anybody ever written a poem about an alien?" he asked.

The machine buzzed again.

"Of course," it said. "What sort did you have in mind? Humanoid? Arachnid? Gestalt?"

"Aquatic," Quist said, "and octopoid."

The Bookworm considered for a moment. "I have *one* possible on file," it said, a trifle doubtfully.

Quist was disappointed. Only one?

"Let's hear it."

The Bookworm began to recite in its dry old voice:

"Strange beauty, eight-limbed and eight-handed,
Whence camest to dazzle our eyes?
With thy bosom bespangled and banded
With the hues of the seas and the skies;
Is thy home European or Asian,
O mystical monster marine?
Part Molluscous and partly Crustacean,
Betwixt and between."

"That's awful!" Quist said.

"Isn't it," the Bookworm agreed. "Actually, it's supposed to be pretty horrible. It's a parody by A. C. Hilton of the English poet Algernon Swinburne (1837-1909) entitled 'Octopus.' Swinburne, a minor poet of the late nineteenth century, is noted for . . ."

"I know all about Swinburne," Quist said.

". . . Popularizing the type of poetry known generally as Pre-Raphaelite imagist. His best poem is probably 'Atalanta in Calydon,' written . . ."

Quist kicked the machine hard in the same spot at which he had thrown the book. It hiccuped again.

". . . In 1854 and dedicated to . . ."

While the dry old voice droned on about Swinburne, Quist went looking for his tool kit. The memory banks were jammed open again. It was a common fault, and one which the interference mechanism programmed to occur regularly at least once every trip. There was

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nothing wrong with the Bookworm. Somewhere inside the machine, in a case which even the most energetic and mechanically-minded Librarian could not penetrate, there was a small mechanism devoted exclusively to the task of making things go wrong. The idea was to keep the Librarians active and their mechanical skills in good order by forcing them every few weeks to perform some trivial but complicated repair to the computer. There was no point in swearing about it. It had to be done, and the best way was to do it quickly so that it wouldn't interfere with the more important work when it came.

Before he started tearing the machine down, Quist pressed the emergency answer button. There was a momentary pause in the machine's monologue on English verse of the nineteenth century.

"Before I start taking you apart, how long before we reach the next system?"

"A day and a half. Thirty-four hours, to be precise." The voice was distant. "The system is that of unnamed star NGC 5548, known locally as New Sol. The system has one colonized planet, occupying the fourth position in a roughly Earth-type orbit. It is known locally as Rayer, after its discoverer and first colonist. The colony has been out of touch with Earth for one hundred forty-four years, but last reports indicated a degree of development roughly equal with that of Europe in the twentieth and twenty-first centuries. The climate is temperate and . . ."

"I now all about Rayer, too," Quist said.

". . . Aside from unusually heavy rainfall in the wet season, Rayer enjoys . . ."

Quist started undoing the computer's main console panel. He wished he had stuck with Swinburne. He seemed to recall that the poet's private life had been somewhat more interesting than the statistics on Rayer's climate.

Some people think that all planets are the same, and so they are—in the sense that all people are the same. There is a ninety-nine per cent resemblance between all planets, but the remaining one per cent can vary enough to make each world completely distinguishable from its neighbor. Quist had seen more worlds than most, but he had yet to see two alike. He looked down on Rayer with a connoisseur's eye, measuring it against his experience. Not an unattractive world, he decided. It had the deep green hue of all Earth-type planets, but the cloud pattern was unusually bright. Bands of white altocirrus flowed across the greenness like milky streaks in a white opal, now masking, now revealing the mottled surface. An opal world then, and yet something of the emerald . . .

The autopilot bonged twice.

"Check time," the Bookworm said.

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Quist turned from the viewport and switched on the check screen. On its grid surface he saw Rayer as a round black shadow striated with white lines. The radiation recorders were picking up all traces of electrical and nuclear energy escaping from the planetary atmosphere. There were many such traces, sticking closely to the traditional pattern. Rayer had apparently prospered since Earth had established a colony there. The main spaceports stood out as clear red patches, showing that the radioactive tracer compounds incorporated in their surface material had not been disturbed or built over. Quist checked the general population distribution as indicated by the degree of radiation in the various areas, chose the port nearest to the largest concentration and fed the details to Bookworm. Then he went back to the window and watched the green-white surface of Rayer rise towards him.

From the ground, Rayer looked less attractive than it had from a hundred miles up. The spaceport was like all spaceports, a bleak gray expanse of concrete with weeds sprouting from the cracks and weathered bits of paper scudding before the wind across its depressing surface. It was drizzling. Quist stood in the air-lock door and looked out at his opal planet. He felt cheated. In the distance he could see a city. It was an industrial complex with a forest of chimneys spouting rank black smoke. The road leading to the city was overgrown, but he could see two cars driving along it towards him. He went inside and waited for them to come. There was nothing to look at around the spaceport, and he needed time to think. He was already forming theories about the situation he would find on Rayer, but it would be a few minutes before any of them would be confirmed.

When he went to the door again, the delegation had already arrived. Five men were marching across the concrete towards him, their clothes plastered to their bodies by the wind and rain. In the background he could see their cars; blunt black vehicles with an unpleasant military look about them. The glass windows were thick; probably armored. Yes, very unpleasant indeed. He studied the five walking towards him. The one in front was pale and thin. He had a beaky nose and old-fashioned spectacles on the end of it—a bureaucrat, Quist decided. The four others were easier to categorize. All carried guns, all wore metal helmets. Soldiers.

"Don't come any closer," Quist said, raising his voice to fight the wind.

The man in front looked up and sniffed, but kept walking. The others followed.

Quist waited until he was nearly to the foot of the ladder, then

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glanced down at the circle of concrete where the ship's rockets had seared a smoking circle in the grayness. Small drops of rain landing on it hissed angrily. The bureaucrat was standing squarely on the hot area. Quist sniffed. There was a smell of burning. A second later the man winced, looked quickly down at the concrete and stepped back with alacrity. He left behind two neat footprints that smoked. The soldiers didn't smile. That was a bad sign. Soldiers who didn't laugh at the discomfort of a superior were too military for Quist's liking.

"What can I do for you?" he asked.

"What are you doing here?" the thin man snapped. "We haven't had a ship on Rayer for fifty years."

Quist indicated the emblem of the Library Service on the side of the ship beside the air lock.

"Cultural Ambassador," he explained. "Quist's the name—Stephen Quist. We travel around the isolated colonial planets and keep them up to date on what's going on back home. We distribute educational materials, art and reading matter, packaged libraries and such. It's been a long time since we were last in this area, so perhaps you haven't heard of us. It takes a great deal of subjective time to make a circuit."

He turned his back to the men and put his foot on the top rung of the ladder.

"The idea is to pass on the—"

"If he takes one more step," the thin man said, "shoot him."

Quist stopped. Slowly he stepped back onto the air-lock platform and turned around, keeping his hands well away from his body. The four soldiers had their weapons leveled at him.

"Move back," the thin man said.

Quist stepped into the air lock. He could run back into the ship if he wanted to, or close the air-lock door with one twist of the control on the wall beside him, but he did neither. Instead he stood in the lock and listened to the man's feet scuffling on the rungs of the ladder. A moment later the thin face came into view and he boosted himself shakily onto the platform. There were more steps on the ladder. Apparently he didn't trust Quist because soon one of the soliders had joined him. Together they went into the ship.

The thin man looked around with interest at the cabin and at the books on the wall. The soldier didn't move, but his eyes traveled restlessly along the ranked spines of Quist's library. He seemed disturbed, and Quist was beginning to realize why. The thin man went to the shelves and took down a book. He riffled through it once, then stopped at one page and read a few lines. He nodded, and then dropped the book deliberately to the floor. It landed half open, with some of its pages crumpled under the weight of the rest. Quist bent automatically

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to pick it up, then stopped as the soldier moved his gun.

The man took the next book, riffled through it and dropped it to the floor—and the next—and the next. After the first six he merely glanced at each title, but they all ended up on the floor. At the end of the shelf he looked at the other shelves ranked up to the roof, and at the pile of books on the floor.

"Burn the lot," he said to the soldier.

Quist smiled.

If the thin man had expected some other reaction, he did not show it. Picking up an armful of books, he walked to the air lock and dropped them out. At the foot of the ladder two soldiers picked up the fallen volumes and carted them almost to the edge of the landing field where they proceeded to build a large bonfire of them.

Quist watched them for a while, admiring the antlike devotion to duty exhibited by all concerned. It made him feel lazy and rather superfluous to stand on the sidelines, taking no part in the activity. Choosing a moment when the regular procession to and from the shelves was temporarily interrupted, he grabbed an armful for himself, walked to the air lock and dropped the books on top of those already dumped there. One of the soldiers, halfway up the ladder when Quist dumped his load, looked up to curse the clumsy colleague who had nearly dropped Volume 86 of the "Encyclopedia Galactica" on his head, saw who had thrown it and nearly fell off in surprise. The other soldiers were equally astonished at Quist's sudden participation in their labor but, glad of the assistance, they said nothing to the thin man.

It took them twenty minutes to clear out all the shelves. When they were finished the pile was ten feet high and covered a large area. One of the soldiers lit a match and set it to a page. The flames licked up, but the rain soon quenched them. He lit another, and another. The same thing happened.

Quist wondered if he had ever seen such a sorry lot of book-burners and decided that, even by the dubious standards of that activity, the men of Rayer rated very low indeed. He went back into the ship and drew a quart of rocket fuel from the emergency rocket tank. Carrying it carefully down the ladder—a drop could have burned a hole in his clothes and probably his skin—he took it to the pile and dribbled it liberally over most of the books at ground level.

One of the soldiers nodded gratefully and, standing well back, tossed his match onto the pile. There was a sudden puff of flame and fire began to eat hungrily into the paper and cardboard. Inside three minutes there was nothing left but a pile of ash. The men stood around and looked with satisfaction at the remains.

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Quist walked round the pile to where the thin man was surveying the results of his evening's work. He cleared his throat with what he hoped was a deferential attempt to attract attention.

"Can I have permission to land now?" he asked.

The thin man turned over one last page with his foot and watched the smoldering ash devour it.

"No," he said shortly. "You will depart at once."

"That may take some time," Quist said. "There's the problem . . ."

"At once," the man repeated. Motioning for the guards, he walked quickly towards the cars parked on the grassed edge of the field. A moment later they drove off.

Quist stood looking after them for a moment. Then he held out his hands to the ash and, when they were warmed, went back to the ship. It was bare without the books. The shelves looked like rifled graves. Quist rolled down the shutters that kept the books in place during planet fall. He couldn't stand their accusing look.

"Did you get all that?" he asked.

"Every bit," the Bookworm said. "Full color and stereo. It isn't every day you see a real honest-to-goodness book burning."

The Bookworm sounded almost happy about what had just happened. Even Quist couldn't help seeing its humorous side. Odd that some people still thought that when a book was burned the ideas in it were also destroyed.

Rummaging around in one of the lockers, he found a rain cloak and put it around his shoulders. Then he went out into the drizzle. From the air lock it had not looked a very great distance into the city, but once he stood on the concrete landing pad the mileage seemed to stretch alarmingly. He pulled the cloak about him, sealed it down the front and set off doggedly along the rutted dirt road.

It was a miserable journey. After two miles the road became quite muddy and irregular. There were signs that big vehicles came by occasionally. From the width of the spiked tread and the way they had torn up the road, Quist guessed they were military vehicles—armored trucks perhaps. He looked around cautiously but there was no sign of anything bigger than a stunted tree. He was glad. The soldiers he had already seen were disconcertingly professional.

Another mile and he struck civilization, of a kind. A cluster of huts stood by the road, windblown and ramshackle. They seemed to have been cobbled together out of any material the owners could find; scraps of metal and wood, old tins, stones and rotting canvas. A child sat in front of one hut. It was the only human being in sight. Quist stopped for a moment, closing his

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nostrils against the stink of excrement and decay. The child was frail and dirty, its stomach distended from starvation. It looked at Quist incuriously and went back to its game in the mud. The Librarian filed the picture away in his mind and went on towards the city.

Within another mile he was in the suburbs, most of which were just vertical extensions of the huts he had seen earlier. They were the worst sort of slum, haphazard, dirty and grossly overcrowded. Nobody seemed to notice him as he walked steadily through the narrow unpaved streets. Nobody was curious on Rayer, though whether it was through fear or indifference Quist didn't know. He guessed indifference. All the people he saw seemed to share the same air of acceptance. As he walked down the center of the street they got out of his way automatically. Even when he accidentally splashed a man with muddy water his automatic apology was ignored. The man he had splashed seemed not even to realize anything had happened. He just didn't care.

The center of the city was little better than the outskirts. There was no planning of any kind. Factories with huge brick chimneys were crowded against houses and large public buildings without any regard for order. There were no footpaths. People brawled their way along the streets, fighting for space with noisy road vehicles, horse carts, dogs and children. It was like a mad combination of Seventeenth and Twentieth Century London with the hygiene standards of the Fifteenth thrown in. Quist had long since lost his capacity for despair, but twinges of it stirred inside him at the sight of this appalling mess.

To create some sort of order out of it all was a task which he realized was almost beyond him. But he had to start. His pride demanded it. Methodically he considered all the plans suggested by Central for situations of this sort, and equally methodically discarded the lot of them. There was, however, one approach of his own which might have some possibility of success. He looked over the crowd, seeking a suitable subject. He let two well-dressed men go by; there wasn't anything he could offer the rich. He needed a poor man, but an intelligent one. Unfortunately Rayer seemed well endowed with poverty but poor in intelligence. He had to wait for almost ten minutes before a possible candidate came by.

He was a young man, thin, almost emaciated. His clothes were shabby but neat enough to suggest he had some pride in his appearance. Quist didn't need to look for inkstains on his fingers to see that he spent a lot of time writing. A young clerk, perhaps, or a student, either one ideal for his purpose. Drawing back into an alley, Quist waited until the young man was

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within earshot. He plucked at his sleeve.

"*Psst!*" he said urgently. "Want to buy any filthy pictures?"

The young man froze in mid stride, turned and blinked.

"I beg your pardon?" he said.

"Filthy pictures," Quist said. "Do you want to buy any? Smutty books? Pornography?"

The young man was baffled. "I don't follow you," he said. "What did you have in mind?"

Quist was beginning to have doubts about his plan and his choice of subject. The boy had looked intelligent enough, yet he was behaving with a denseness the Librarian had never encountered before. He had expected him to be ignorant of calculus, but even an idiot knew something about pornography.

"Filthy pictures," Quist said again, only slower. "Erotic photographs, salacious literature. You understand?"

"Not really," the other replied. "Well, I mean, I know what you're talking about, but why should I want to buy them from you? I can get them in any shop. This sort of thing, you mean?"

He groped in his jacket and pulled out a wad of cards, handing them to Quist. He looked at the top one, then at the second, going on with rising interest to the last. Even Earth's sophistication had produced nothing as bizarre as these. He looked at the back of one card. There was a printed legend on it. "Department of Information," it said. "Education Division. Set 114."

Quist handed them back, his mind working at top speed. Now that he thought about it, the idea of a government-published pornography was not surprising. Most totalitarian governments had used it at one time or another, usually to reinforce a particular drive against a specific enemy. The government of Rayer had merely carried it to its logical conclusion.

Then he had an idea.

"What about books?" he asked.

The young man's reaction was the copybook one. He blushed, looked furtive and shuffled his feet.

"Have you got books?" he whispered, glancing over his shoulder. "Where did you get them?"

Glancing keenly at Quist, he noticed for the first time the clothing under his cloak. His manner became more furtive still.

"You're the Earthman!" he said. "I thought they ordered you off."

"They did. After they burned all my books."

The young man looked depressed. "I thought it was too good to be true," he said. "They wouldn't let books onto this planet."

"How did you know about me?" Quist asked.

"The radio. It was announced that you had landed and been refused permission to stay. It's government policy to have no contact

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at all with outside systems, and especially Earth."

"I guess they wanted to drive their point home," Quist said. "Don't worry about it. I have a few more books up my sleeve. Are you really interested in getting hold of them?"

"Yes! I'll do anything. There are a few books in circulation with the underground, but only a few. How many do you have?"

The underground. That sounded promising. Quist decided to explore further—if the boy was still around, of course. He was so excited that his eyes kept shifting in their sockets as if he were expecting a truck to come bearing down on him at any moment.

"About this underground," Quist whispered. "Perhaps you could introduce me to your leader?"

The youth looked at him nervously.

"I don't know," he said. "It's very dangerous. We're not supposed . . ."

"Books!" Quist said quietly. "You said you'd do anything."

In the boy's eyes duty fought a losing battle against greed.

"All right," he said. "Meet me in the Alley of Kings in two hours."

Quist watched him move off through the crowd. He was still not sure exactly what he had committed himself to, but the events of the last few minutes had borne out his theory about people. The forbidden was always attractive. Told not to do something, most people immediately went out of their way to disobey orders. He had been wrong about the sort of thing that was forbidden on Rayer, but not about the universal intransigence of the human race. He caught two people looking at him and checked his smile quickly. His expression assumed the disinterested and gloomy characteristics of the others in the crowd and he moved off quickly into the nearest side street.

The Alley of Kings lived up to the combination of seediness and tattered grandeur that its name suggested. Once, the buildings had been luxurious, but now the street was dirty, crumbling and crooked. As he squeezed around a congested corner, Quist wondered what sort of maniac could have built a street so careless of the rules of town planning. It looked as if the plan had been drawn freehand and somebody had jiggled the artist's elbow. Shouldering his way through the almost impenetrable crowds, the Earthman looked up with unease at the decaying buildings above him, each one apparently held up by its neighbors. Which one of these held the headquarters of the underground? It came to him, belatedly, that the boy had not told him where in the Alley of Kings to wait. Resigning himself to more discomfort, he pushed on, jostled by the crowds but, as he had come to expect by now, unnoticed.

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It was ten minutes before the underground made itself known to him. As he passed a narrow passageway a whisper penetrated the mutter and shuffle of feet. He turned quickly and slipped into the dark alley. The passage was really a crack between two buildings where the walls had sagged apart with weariness. On one side there was some kind of warehouse, while the other held a dark and smoke-filled place that Quist, sorting about in his knowledge of ancient Earth customs, was able to identify tentatively and with distaste as a fish shop. Turning away from the smell of fat and old fish he quickly followed the dark shape in front of him down the passage, not without a twinge of unease. Still, the dealer in banned books must expect to indulge in activities of this sort.

At the end of the passage a flight of rickety wooden stairs led up to a door in the rear of the warehouse. The two men clattered up the steps and Quist's guide pulled the door open. They slipped inside. The room was dimly lit. Behind a square burlap-covered table that might have been an overturned packing case sat a grim-faced man with black hair and an air of business-like efficiency about him. The guide pushed back his hood, revealing the face of the young man he had met on the street. Quist smiled encouragingly, but the boy glanced nervously at the man at the table before essaying a wan grin.

There was no smile from the other man.

"You have books?" he said shortly.

Quist looked him over. About thirty years old, he guessed, and very thin. His face was narrow, seeming to come to a point at his large nose. He looked intelligent behind his scowl. He was probably nervous, Quist decided.

"Who are you?" Quist asked.

"We don't give names here."

"My name's Quist. I'm a Librarian—Cultural Ambassador, really. Our young friend here suggested you might like to have some books and I'm in a position to supply them."

"You're from Earth," the man broke in. "Why should you want to give us books?"

"It's my job. I told you. I'm . . ."

"How much do you want for them?"

"Nothing. It's a free service. If you just let me explain . . ."

"How do I know I can trust you?"

Quist leaned wearily against the edge of the table and discovered that it *was* a packing case. The setting was perfect. They were revolutionaries, true enough. He wondered if they made bombs in the back room. Though judging by their feeble tries at intrigue he wondered if they knew much about even so basic a rebel activity. Well, he could teach them that easily enough. He thumbed through the catalog in his mind. Yes, Bell's "On

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Explosives" would probably be the basic text. He made a note to look it up when he got back to the ship. But first, he had to establish just how far they would go, what sort of following they had, and how far they had gone already.

"Can we establish a few things first? For instance, you *are* plotting against the government, aren't you?"

The dark man looked across at the youth standing by the door. They exchanged a glance that seemed to Quist to be rather odd.

"We're interested in your books," the man said. "We don't have to discuss anything else."

"You do if you want the books," Quist said shortly. "Tell me why you're against the government. What will you do if you get into power?"

The man rubbed his chin.

"Everyone is against the government," he said cautiously. Or was it caution?

"Yes, but why?" Quist pressed.

"Because of Rogo."

"Rogo?"

"The leader."

"I see. And he's a bad man?" Quist tried to keep his voice neutral, avoiding any hint of sarcasm.

"He's a monster!" the man cried. His fist banged on the table and the youth stood straighter and scowled. "Everyone is poor because of him. Taxes are ruinous. We live like animals; no, worse than animals, because our books are confiscated and burned, our movements watched all the time. We are slaves to Rogo."

Quist nodded. "I see," he said. "And what will you do when you succeed in overthrowing him?"

The man looked puzzled. "You mean—when he dies?"

"Well, yes. When you kill him, I mean."

The thin man blinked as if he had been hit hard between the eyes.

"When we *kill* Rogo!" he said.

Quist looked carefully at him. He seemed intelligent enough. But if his reaction was not stupidity, then what was it? A suspicion began to form in his mind.

"What exactly does this underground movement of yours plan to do? What are your aims?"

"We circulate books. Didn't Jonrad . . ." the name slipped out, " . . . uh, didn't my friend explain the nature of our organization to you?"

Quist stared at him with what he hoped was not an insulting degree of disbelief. "You mean your underground is a *circulating library?*"

"Of course." The man spread his hands and leaned back in his chair. Quist saw for the first time that it, too, was made from a small wooden crate. "That's why we want those books you mentioned. It's our duty to keep alive the individuality of the people of Rayer. Of course, we're only a small group but there

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are members in many countries. Why, only last week . . ."

"But surely you have some political aims," Quist said desperately. "Wouldn't you like to overthrow the government, set up your own administration?"

"Certainly," the man said, leaning forward. "But listen . . . about these books, can we really have them?"

Quist looked at the youth staring eagerly at him from across the room, then back to the expression on the face of the dark man.

"Yes," he said. "You can have them."

"Good," the man said, unable to repress a smile. "Good."

"There's only one condition I'll insist on," Quist said.

"What's that?"

Quist smiled grimly. "The selection," he said, "will be mine."

It was cold crouching in the bushes at the edge of the spaceport. An icy wind flowed over the little group, flapping their cloaks against their chilled limbs. Quist eased his weight from one leg to the other and winced at the pain of his cramped knee.

"Don't you think you're being a little overcautious?" he whispered to Jonrad.

"Cassill thinks it best."

"The place was empty when I left. And nobody could have got into the ship. They probably still think I'm inside."

"It doesn't do to take risks," Jonrad said. "Cassill says . . ."

Quist reflected on what a sad lot of potential revolutionaries they were and settled down to wait.

Five minutes later Cassill, the dark man, wriggled back through the grove to their side.

"It's lucky we checked," he whispered. "There's a whole platoon of guards on the ship."

Quist started up, then sat back again.

"I told you something like this would happen," Cassill said. "If Rogo ordered you off the planet, he expected you to go, and quickly."

"Well, what now?" Jonrad asked.

"I don't know," Cassill replied. "It's his ship."

He turned to Quist.

"I don't see how you can possibly expect to get past so many guards."

The comment stung Quist. He had so far been more than smart enough to beat Rogo's men. He would continue to be so, somehow.

"How many men are there?" he asked.

"Twenty, maybe twenty-five."

"Officers with them?"

"A lieutenant, a couple of sergeants, too."

A lieutenant. That was a stroke of luck. Quist saw a plan forming already.

"How far to the edge of the landing ground?"

"Fifteen yards perhaps."

"Right. Now I want you to wrig-

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gle as close as you can to the edge and stay there. Is there cover?"

"If we stay well down," Cassill said. "But why get closer?"

"Trust me," Quist said, "and do exactly what I tell you."

Two minutes later, the guards on the ship were surprised to see a figure emerge from the shadows at the edge of the field and walk briskly towards them. A light speared out towards the newcomer and blazed on his face.

"It's the Earthman," somebody said. "He's not in the ship."

The lieutenant ceased his tattoo on the wall of the ship and scrambled down the ladder as quickly as he could manage without losing his dignity. This necessitated a slow descent, so that Quist had to wait a full ten seconds at the base of the ladder before confronting the superior officer. He used the time well, looking over the group of soldiers like a general inspecting a shabby contingent of civilian militia at a country outpost. He tried to make the inspection as cool as possible on the theory that gall succeeded where brains failed. With the soldiers, it worked. They straightened up visibly under his gaze.

"Who's in charge here?" he asked, superfluously in view of the lieutenant now on the last few rungs of the ladder.

"I am," the officer shouted, almost falling in his haste to take control once again of his troops. He was a young man, cast very much in the military mold with a stocky body and round hairless head. Quist knew immediately that here was an adversary hardly worth the trouble of deflating. The knowledge gave him confidence.

"Why are there armed guards on my ship?" he demanded. "I am an accredited representative of the Earth government and as such entitled to full diplomatic immunity. That also applies to my ship. Remove your men at once."

Taken aback by this frontal attack, the lieutenant was at a disadvantage from the start.

"You were directed to be off this planet immediately," he said. "Why are you still here?"

"That is entirely my business," Quist said loftily. "But surely it must be evident even to you that there is a great deal involved in spacing-out a ship. Due to an unwarranted and illegal confiscation and destruction of certain goods from my ship this morning, it will be necessary for the entire balance of the ship to be altered. Cargo must be restacked, the engines reset. As soon as this is done, it will be possible to leave."

Faced with a choice between seeing Rogo's orders obeyed and losing face before his men, the lieutenant made a decision, the speed of which was a tribute to the fear the dictator inspired in his minions.

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"What must be done?" he asked.

"Well, if I remove some of the cargo and restore the balance . . ."

"Get on with it then," the lieutenant ordered, stepping back and gesturing up the ladder. Quist went up as quickly as possible, hoping the officer would not change his mind. The plan, as he had expected, was working well.

The main lock had not been disturbed. He keyed it with his thumbprint, slipped inside and relaxed for the first time that day. Even the guard panting up the ladder behind him was only a slight dampener on his spirits. The ship was Quist's home ground. Nobody could beat him here, and especially not a dumb dogface with a rifle.

He turned on the lights in the main cabin, checked the Bookworm's console and threw the full emergency switch. Bookworm went into top efficiency, every memory bank quivering in anticipation of sophisticated and complex problems. But there was still the soldier to deal with. Quist opened the locker where he kept his food supplies and indicated the boxes of concentrate piled there.

"You," he said, imitating as accurately as he could the lieutenant's unpleasant tone. "Move these over to the edge of the landing field. I want them far away from the ship."

The soldier, supremely weary, put down his rifle, picked up a box and exited. Quist almost ran to the Bookworm.

"Run me a full biblio on type 5 revolutionary procedures plus supplementary reading. Quick."

Bookworm, for the first time Quist could remember, did not comment on the order. Circuits began closing with dizzying speed and a stream of tiny microbook templates poured into the receiving box. He left the machine bubbling to itself and hurried to the locker next to that where the food was stored. He had perhaps another thirty seconds before the lieutenant realized that his prisoner had been left unguarded and came to see what was happening. The estimate was a little off. It took him fifteen seconds to take out one of the portable kits from the stock of fifty that all Librarians carried, another twenty seconds to go to the Bookworm, take out the package of templates and put them into the kit, lock it and put it with the other loose equipment. When the lieutenant arrived, Quist was prepared. He picked up the kit, handed it to the officer, hefted a box of concentrates onto his own shoulder and walked past the lieutenant to the top of the ladder.

"Just follow me," he said over his shoulder. "I'll show you where to put it. I must say I appreciate your co-operative attitude, old man."

At the bottom of the ladder Quist passed the box to a soldier and pointed to the perimeter of the field.

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"Over there somewhere, please," he said.

Just then the lieutenant reached the ground, still holding the gray metal kit case. He did not quite seem to know what he was doing with it, but he was carrying the thing and that was all Quist wanted to see.

"Just put it with the others," he said lightly as he passed the bemused man and went back up to the air lock.

At the top he drew back into the shadows and watched the officer walk to the edge of the field. He put the case down beside the box of concentrate already placed there and walked back towards the ship. As Quist watched, a long pale arm reached silently out, grabbed the case and dragged it into the bushes. There was no sound and no other movement.

Quist went back into the cabin and programmed the Bookworm for space-out.

"Scare those goons off," he ordered.

A hooter roared, scattering the soldiers like frightened sheep. Relays clicked, bulkheads were sealed as the ship made ready to take off. Quist belted himself into his seat, hit the firing button and, as a last touch, pressed another smaller switch. Just before the ship rose slowly on its jets, a panel opened up near the nose and hundreds of sheets of paper were scattered by a small explosive charge over the crowd of terrified soldiers now distributed around the edge of the field.

The leaflets were a little touch of Quist's which had proved very effective in other similar cases. As he went up through the atmosphere more of them would be thrown out until a large proportion of Rayer's population would have a copy.

As the papers fluttered down around the troops, one soldier reached out and grabbed one. His lips moved painfully as he groped his way through the few printed words. It was a standard text.

"Hail . . . the . . ." He turned to the lieutenant. "Excuse me, sir, but what's a . . ." He consulted the paper again, ". . . a rev-o-lution?"

It promised to be a good revolution. Possibly a bit amateurish, Quist conceded, but out of the best possible motives at least. Freedom, economic equality, political representation—the list was endless, the rhetoric universal. Undoubtedly it would succeed. Not immediately, of course, but that didn't matter. The seeds had been sown, and Rayer would never be quite the same again.

Quist sat at the computer transcribing his written report. The computer would digest it and whirl it away to the section in its memory banks where all such things were kept, to be regurgitated later at the end of the circuit when the Board would examine the reports and

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call him in for commendation or, as was usual in Quist's case, a stormy accounting. He gave all the details of his initial reception; his contact with the "underground," and the final plot to smuggle the portable press and microbooks to Jonrad and his men. Although it was not strictly necessary, he included a list of the books with his report; a pointed reminder to the Board members that he had supplied them with only the standard texts on political and economic theory, revolutionary tactics and so on, together with the vital percentage of works on literature, religion and language. He said that he had not, as on one disastrous occasion a few years ago, smuggled in a quantity of westerns, ghost stories and mild erotica. They would be pleased to see that he had adhered to the approved line.

Fired with a kind of masochistic glee, he added the sort of terminal paragraph that Controllers dream about.

"In view of the facts listed heretofore, it is my conclusion that I have successfully implanted the seeds of creative thought and knowledge once more on this planet with the result that the creative dynamics of social change should now once more be allowed to function in what had become a stagnant society wasteful of human resources. This, after all, is the essential purpose of the Library Service."

He laid the microphone down.

"They'll love that, Bookworm," he said.

"Yes, Quist," the machine said. "I think you loved it a little yourself."

Quist looked at the ceiling. There was always this moment at the end of a job, the turnaround when nostalgia met expectation in a misty limbo where everything was neat and clean, and the life of a Librarian seemed almost a desirable one.

"Bookworm, do we still have the old indoctrination tape? The 'Ideas Are Dangerous' thing?"

"I've got everything they ever put into me," the machine said. "I'm the original junk yard."

"Give me that first part again."

In the machine, a relay closed and the tired old voice of the past trickled out into the ship.

"Remember that as Librarians you carry with you a sacred trust, the future of the human mind. It does not matter if the race lives forever if its ideals do not live with it. Those ideals will only live on if they are called continually into question, exercised, disputed, fought over and died for. Stasis is death. Never forget that.

"And never forget this: Ideas are dangerous. When you go out to the lost worlds, you are carrying with you a weapon more terrible than a plague bacillus, or a neutron bomb. The censors who try to suppress thought are perfectly right to do so. An idea can destroy a civilization

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as surely as any war. Remember all that separates you from the people who would enslave men's minds is your conscience—and devotion to the ideals and ethics of the Library Service. Whether a race moves forwards or backwards, to glory or to the grave, is a decision that rests with you alone."

Quist felt the familiar shiver along his spine. Then, abruptly, he jerked himself back to reality.

"O.K., Bookworm," he said briskly. "File the report and . . ."

"I expect you to keep these precepts always in mind, gentlemen," the old voice went on. "But, on a mundane level, I must also ask you to remember certain other matters, equally important. There has been an increasing tendency among young Librarians to ignore certain rules, such as those pertaining to switching off the gravity shields during flight, smoking on board ship, fraternizing with the inhabitants of certain worlds and other items. For your information I am now going to read you the relevant passages of the official regulations . . ."

"No, Bookworm!" Quist shouted. "Not the whole speech!"

". . . Pertaining to these matters, and I must ask you . . ."

Hurriedly, Quist reached for his tool kit. There were two whole hours of the speech. Two hours! This time he *had* to get those memory banks put right. ■

THE ANALYTICAL LABORATORY

Last month we gave an explanation of how the An Lab is made up from the votes you readers send in—and explained how your votes determined which authors receive the one cent a word (which is 33⅓%) bonus rate for first place and who gets the half cent bonus. One advantage of that system, from the editor's viewpoint, is that the author can't claim that I "didn't appreciate" his best story. If the readers "didn't appreciate" it then by the necessary definition in a harshly objective economic world, it wasn't his best story whatever he thought! Equally, of course, if he does get the bonus—then he is demonstrated right in his belief it was good.

This month's voting was unusually tight—as usually happens when the quality of all the stories is unusually high. Any time a Poul Anderson story gets nudged out of first place, the competition *must* be really rugged.

APRIL 1966

PLACE	STORY	AUTHOR	POINTS
1.	Who Needs Insurance?	*Robin S. Scott*	2.60
2.	A Sun Invisible	*Poul Anderson*	2.64
3.	Moon Prospector	*William B. Ellern*	2.76
4.	Rat Race	*Raymond F. Jones*	3.05
5.	The Easy Way Out	*Lee Correy*	3.53

THE EDITOR.

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MEANING THEORY

DWIGHT WAYNE BATTEAU

Cartoons by Kelly Freas

If you watch a new-born baby in the process of learning how to use the built-in ability to manipulate arms and legs—you're watching the process of developing Meaning out of mere Information. Which is the difference between an intelligent entity and a merely logical device!

In an earlier article on speech recognition and synthesis, "meaning theory" was mentioned several times. I also included a brief apology, knowing that hardly anyone had access to it, but was reminded by the editor that further explanation was in order. The purpose of this article is to present the bases of what was mentioned, and to attempt to indicate the uses of the theory. What is presented here is a consequence of many years of exploration with

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good companions, and please understand that I cannot consistently claim that it is complete. And don't get mad at me if I don't talk down to you, I know that the reader of this article is also likely to be able to understand it because of where he is reading. Having had years of experience relative to the "complete in-group,"* and feeling often a member of a "stupid out-group," and frequently discovering that a worm's-eye-view is strange to a bird —and vice versa—I'm inclined to call 'em as I sees 'em. With that long-winded prologue out of the way, tighten your no-grav and let's go.

We have become somewhat familiar with the ideas of information theory, so that reference to those may be a good place to start. One of the ideas is that information is measured relative to its unpredictability, that is to say, "the less predictable a message, the more informative it is." Since knowledge of a message causes it to lose its information value, we can immediately draw a reasonable conclusion that when a message has conveyed its meaning, it is no longer informative. Or we might say that when we have extracted the meaning from a communication, we have negated its ability to inform us. Or we could say that when a communicated message is no longer informative, it has become meaningful. A paraphrase would be that when one knows something, he cannot be informed of it. As an example, if you know today's date, you are not informed when someone tells it to you, and so on.

Along with the development of ideas of meaning and knowledge, I generated wry comments which I call "Stupidtheorems." For a statement to be a "Stupidtheorem" it must derive from the ideas of information, communication, knowledge, and meaning and be consistent with those ideas. Hence it is a theorem. The choice of the name was suggested by a conversation in "Pogo" and also by the rather obvious character of many of the theorems. The one applicable to and from the prior discussion is called S 1:

S 1: The only thing you can learn is something you don't know.

There are many places in the following discussion where it is convenient to use the words "set," "subset," and "transformation." These may be unfamiliar, or have a meaning for you which is different from what I intend. I use them in about the way they are used in mathematics. Of course, there are properties of particular kinds of sets and particular kinds of transformations which form the substance of mathematical studies. The usage here is the simplest possible.

When I say "set" I mean a bunch of elements with something in common, like a set of dishes. When I

*A complete in-group excludes everything not already in the group.

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say "element" I mean a member of a set, *e pluribus unum*, that is. And if that sounds like a circular pair of definitions, it is. When I say "subset," I mean a "set" within a "set," like cups in a set of dishes. And when I say "transformation," I mean a rule of correspondence, like $1.20 a dozen, or 10° C. per inch (mercury-in-glass thermometer). When I say "inverse transformation," I mean back to the beginning, like a dozen for $1.20, or one inch for 10°. If I "know" one inch is ten degrees, I have the inverse to the thermometer correspondence of ten degrees gives one inch. If you don't "know" what I "mean" then I have transformed my "information" into your "null-space," impolitely known as the hole in your head. (I've got one bigger than a galaxy.) Incidentally, the formal definition of "null-space" is the set of elements of measure zero, undifferentiated, no information—"all Martians look alike" is a statement of null-space.

I wish to state again the fundamental assumption of meaning theory: when a message is no longer informative, it has become meaningful. A man cannot be informed of something he already knows. If you know what time it is, you are not informed when someone tells you the time. May I remind you that

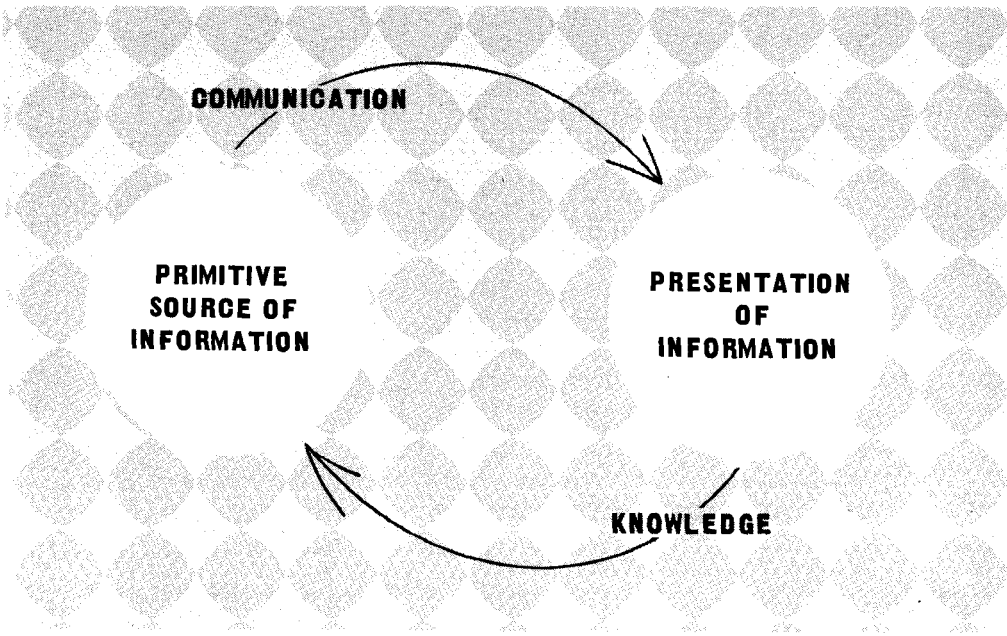

Figure 1: The cycle giving meaning to a message.

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the Stupidtheorem in consequence is, "the only thing you can learn is something that you don't know."

If this seems to be a trivial assumption, perhaps a rather startling consequence would be appropriate. A law of nature, when known, prevents any further information of that kind from appearing in nature. A law of nature makes predictable, and thus uninformative, all of the relationships to which it applies. If one wished to derive a measure of value for a discovery of a natural law, the measure could be given from all past isolated events which are related predictably by the discovery.

Perhaps we could examine a diagram of information, communication, and knowledge to help the ideas along, Figure 1. The left hand circle indicates a primitive source of information, such as the 1966 winner of the Irish sweepstakes. The line and arrow of COMMUNICATION ⟶ indicate the transmittal of that information to a remote place where it is presented, such as the blackboard in the bookie's office. The reverse line and arrow KNOWLEDGE ⟵ indicate the comprehension of the message as informing the bettors of the sweepstake's winner. This cycle gives meaning to a message. It is necessary, because inability to perform the reverse correspondence denotes ignorance of the meaning of the message—for whatever reason. If the bettor who had fixed the race were to be watching the blackboard, he would be uninformed by the presentation of the predicted outcome. If the wrong horse won, he would be informed not only of the true winner, but also of something else, as yet unknown, regarding out-of-control transformations.

It is interesting to observe that in a given universe, a consequence of the previous development is that everything is either known or informative. Thus the process of continuing to create knowledge from information changes the boundaries between the two sets "information" and "knowledge" as well as their respective volumes of differences and relationships. In a sequence of continuing experience, without a law of occurrence, the information shifts slowly into knowledge, but when a "law of nature" is discovered, a whole class of information suddenly disappears into knowledge, as if by magic. Long before the coming experiences correlated by the law of nature are encountered, they have become uninformative. Interestingly enough, this constructs a "quantum jump" in the measure of knowledge; since all the previously informative differences are now predictable, their contribution to the total measure is instantaneously shifted from "information" to "knowledge."

At the risk of being overly redundant, let us reexamine the con-

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sequence of the hypothetical structure thus far. A law of nature, when known, prevents any further information of that kind from appearing in nature, since all such relationships are now predictable and thus uninformative. That is to say, that a law of nature makes predictable, and thus uninformative, all of the relationships to which it applies. Suppose we now wish to derive a measure of "value" for a discovery of a natural law. If it were possible to count in bits all the information which had been accumulated on that subject and converted piecemeal to knowledge, this measure could be called a "minimum value." That is to say that the value of the discovery is at least as great as its ability to organize isolated past experiences.

When the simpler behavior of falling bodies was discovered and the rules elucidated—or made "laws"—it was no longer informative regarding the attraction of masses to measure the speed of falling bodies. Thus all measurements past or future became uninformative in this respect—other information, however, could be turned to knowledge such as "drag" or the "gravitational constant". If it were possible to find the measures of all human made measurements providing specific knowledge, and also to find the ones which follow the newly discovered law, the worth of a discovery could be stated. In a more definable way, the discovery of the periodic table predicted new elements, removing that much significance from their discovery, and no information regarding possible elements can be provided by the observation of a previously unobserved occupant of a particular slot. The nucleotides have been brought to a similar state, and the information available is reduced by the knowledge of the rules, even though they are not perfect.

If a final value for a law of nature were desired, given full measures of information possible, the new discovery defines a subset whose measure in ratio to the set of the total universe gives value to the discovery. However, this is the essential definition of probability and thus far-reaching discoveries are more likely than narrow ones. We have said by this statement that a generally applicable rule is more likely of discovery than one of less generality. If this seems outrageous, may I point out the extreme generality of the law of the conservation of energy? The rule of "energy is conserved" was one of the earliest rules to be elucidated. It has been applied innumerable times to problems from Astrophysics to Zoology. In attempting to find explicit forms of relationship in dynamic physical systems, it is the rule to which one most often appeals. The subtleties of Acoustics use the rule of energy conservation in propagation problems; and Bremmstrahlung and Cryogenics look to energy conser-

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—One word is worth a thousand pictures . . .

vation for meaning. Almost everywhere we look in science, we find use of the rule of conservation of energy. There is, however, an even more general rule; everything is. The Stupidtheorem in consequence is, "you will observe the most likely kind of events more often than any others."

If we were to stop at this point, the utility of "meaning theory" might not be realized, but there is a good bit farther to go. If giving meaning to a message destroys its information, we may now ask how to make an information measure zero, and may answer that one way is to return the message to its origin, thus balancing the information measures and placing that particular one predictably in its place of origin. When this is done, it is no longer capable of informing, and is known, has meaning, or is understood to the degree that the return is complete. At this point there are so many consequences that selection may be necessary. One selection says that, "in order to know, one must perform the inverse to the transformation of perception." This is the item quoted in the article on speech, "How to Make a Robot Speak English," Analog, August, 1964, as the definition of meaning. The Stupidtheorem in consequence is, "in order to tell a man something you must be able to speak his language." He cannot give it meaning, return it to its origin, if you do not.

In our speech laboratory, Dr. Joseph Grandine one day posted a sign, "One word is worth a thousand pictures." I agree with him completely in one space and with the original statement, "One picture

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is worth a thousand words," in another. Stupidly, "I cannot tell you what I see and I cannot see what I tell you." The meaning spaces (inverses) are different. To ameliorate my despair, let us repeat a small sketch to go with the words. Figure 2 is essentially the same as Figure 1, and has a circle on the left representing a bounded universe. This universe is "covered" with information and is thus a "carrier" of information. The act of perception, *as here defined,* is to transform the information covering "I" over *Prim* onto the carrier *Pres.* (*Prim.* for "primitive"—*Pres.* for "presentation.") The line and arrow, mounted by T for "transformation," indicate this process. Knowledge is created onto *Prim* ("I know *Prim*") by construction of a transformation, T^{-1}, inverse to T which puts the information back onto *Prim*. The accuracy of approximating of T^{-1} gives the degree, or measure, of knowledge for a given situation. Since, by this process, the information on *Prim* has been returned from *Pres*, it is predictable in *Prim* and thus uninformative to *Pres*. Relative to the above discussion, a transformation from me *Prim* to you *Pres*, if you didn't get T^{-1} right, don't tell me I didn't inform you, just kick yourself for not "understand-

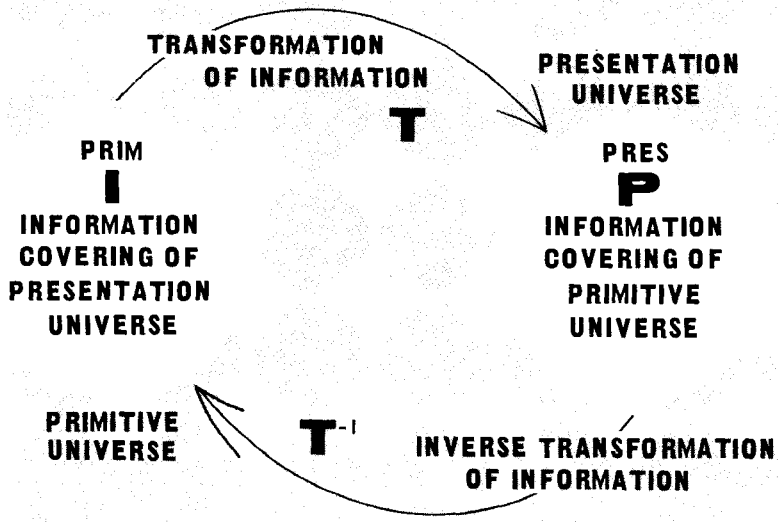

Figure 2: The structure of perception and knowledge.

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ing." I can provide information; you must provide meaning—understanding, knowledge. So far as I can, I also try to speak your language, but you may be required to learn some of mine and make it yours. This particular manifestation can be termed the SOB syndrome, commonly, "I told you but you wouldn't listen, sob."

It is possible that I do violence to accepted definitions as I use "perception" in a well defined way. The ordinary usage seems to indicate sometimes knowledge and sometimes not. The use here indicates simply the reception of information, not the consequent formation of an inverse to the transformation of perception (consistent usage). In this usage one may perceive and not know. The information may be delivered to the mind and the mind not know what to do with it. The usage is one of convenience and consistency and no further meaning should be given to it. Thus we may speak of "the perception of information" but "the creation of knowledge."

I wish to make another selection, this one having to do with absolute differences in kind, and possibly called dimensionality. And how in the world do I convey the significance? As before, may I ask you to speak my language? The common vocabulary is given by the universe in which we live; may we learn to understand its language? I may speak of objects in terms of their weight. This is much more general, and, therefore, less specific, than their shape. But shape may also be important. A large variety of objects can have each the same weight as the others. The specification of weight is specification of only one attribute of the object. If among the objects of concern there are spheres, cubes, and tetrahedrons, there may also be a large variety of objects which have the same shape. The specification of shape is also specification of only one attribute of the object. If we specify both weight and shape of an object, however, we have provided more information and have been more selective than if we specify only one attribute alone. We may think of "weight" as one coordinate or dimension of specification, and we may think of "shape" as another coordinate, or dimension, of specification. Then, too, we may illustrate this two-dimensional space with Figure 3.

By introducing "dimensionality," I imply "kinds of information," "multiple indices," or to quote from "They'd Rather Be Right," "many-valued physics." In this vein I may ask, "How much area does a line have?" Answer: None. Thus, a far reaching one-dimensional generality may have a zero value in a two-dimensioned information space. The Stupidtheorem in consequence is, "the probability of predicting correctly a coming event from its shad-

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ow before is zero."

If we wish to speak with precision, we must restrict "dimension" to coordinates in a continuum, and conclude that any set containing a finite—or even countable—number of elements is of zero dimension. Thus a universe of a finite, no matter how large, number of elements could be described by giving each element a number, as in the periodic table. When we deal with uncertainties, however, the elements become misty and vague, and run together as if indistinguishable and seem to form a continuum. Because of the uncertainties, we can assume a continuum of elements and equate "kind" with "dimension" or "coordinate." When we have set up this situation, we need the preservation of dimensionality in order to con-

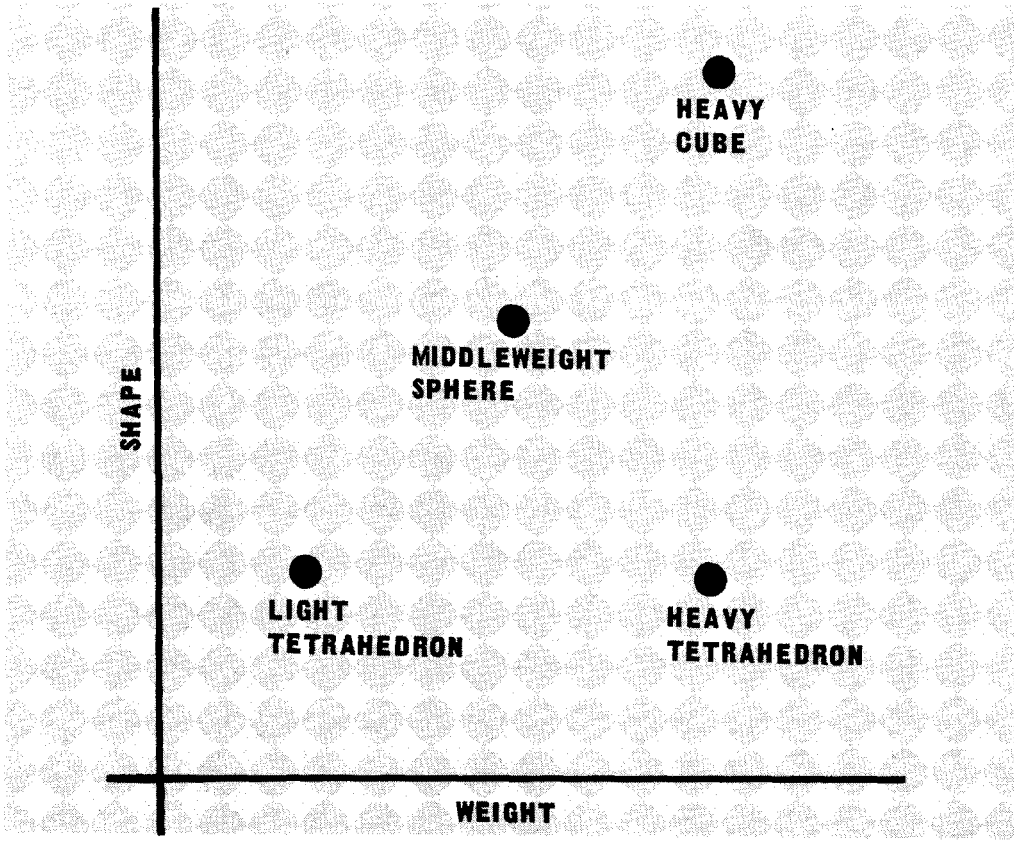

Figure 3: A two space of shape and weight.

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struct inverse transformations. The "shadow before" is a two-dimensional representation of the four-dimensional (at least) "coming event" and thus the inverse cannot be constructed in the required dimensions. The measure of a two-dimensional set from a three dimensional set is zero, and hence the statement of zero probability. Only by adding other dimensions, such as "context," to make finite probabilities can shadows be useful in prediction. Non-preservation of dimension is one of the ways to produce illusions, as in the well known "one-eyed" illusions of psychological studies. In these cases the "expected inverse from context" is inapplicable to the rigged situation. The same analysis applies to the "Trompe de L'oeuil" paintings.

One of the aspects of meaning is the need to predict in order to control. By control I mean, "I insert this lunk of information *here* and that *un*informative lunk comes out *there*." (It turned out the way I expected.) If you get the meaning of the message (perform the inverse) the consequent events are no surprise (uninformative). However, information measures require bounded, measurable sets. Measures can be derived in any dimensionality; lines have length but no area; surfaces have area but no volume; space has volume but no squormish (x . y . z . t); creegzach has squormish but no mezzush, and so on. To have finite measures of knowledge and information, boundaries of some kind are necessary. The Stupidtheorem in consequence is, "You can't control your territory if you don't stake it out."

As an apprentice in Animal Behavior, I have learned about the way animals define a territory for their own and defend it. Poul Anderson's "Territory," (Analog, June, 1963) touches the subject. At the First International Cetacean Symposium, in Washington, D. C., August, 1963, I saw a Walt Disney movie of underwater life, magnificent and totally illustrative of the concept of territory. As we were watching, I leaned forward and whispered to a psychologist friend in front of me, "Consider territory to be defined only by the information covering and not the carrier. Let's see if our friends at the Symposium are defending intellectual (information) territory." They were. As each speaker defined his area of research, questions from participants from other areas elicited defense; from the same area, discussion. We might state a Stupidtheorem, "Every complete ingroup has only one significant member." (The meanings of all elements are the same.)

Has it occurred to you that scientific progress has been made by *excluding* psi phenomena? What of laws of falling bodies in levitation space? Following Batteau's "First Law of Laws of Physics"—somewhere in this article—the rule is

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"They fall the way I want 'em to, but if I don't care, v = gt." When a man stakes out a territory to "defend," he does it to gain "control." (See the "complete in-group".) Notice that "don't care" is a reduction in dimension—zero value in the "care" space. If this sounds cavalier, observe that "care" makes aircraft fly and spaceships function, and we have v = gt.

Now I wish to make another selection. Let us first agree that a rule of relationship reduces the information available in the region applicable. If we then have two regions in which the same rule produces the same kind of reduction, so far as information theory is concerned, they are really one region. Thus, one is the "analog" of the other so far as understanding, knowledge, and meaning are concerned. If it were not for the consideration of dimensionality, there could be no analogs. As with Pauli's exclusion principle, two elements for which all information is the same are the same element. That is a humorous way of saying that no distinct things can be the same in all respects. The straightforward way is just too obvious. If there is a multi-dimensional universe, there can be "analogy," or identity in all respects excepting one kind, or one dimension. If the result is convenient, as in the electrical simulation of a mechanical system, knowledge derived from the analog applies to all but one dimension of the primitive. The "analogy" may be in a "model space." That is to say, there are sets and transformations which have elements and rules identical to space modeled. The value of the model is to compute and predict behavior of the modeled in a more convenient, more manipulable, possibly safer, space. An imagination is a model space. Imagined meanings must be tested in the "real" space—the space to which the analogy applies.

The analog, as we have described it, is the same in some respects, but not in all respects—and you may, if you wish, read "dimensions" for "respects"—with the system of which it is an analog. The statement in the previous article referred to was, "analog—carries the same information." A carrier of information is the term generally applicable to anything, and while in nature the carrier is a "thing," the information is abstract, concerning relationship, and can be "transformed" from one carrier to another in the same way that radio waves carry music and television pictures. The music and pictures are the information carried, the electromagnetic fields are the carriers.

For an element to "exist" in a universe, it must be distinct from and related to other elements. In other words, it must be informative; an element must be a carrier of information to exist. Perhaps even more important, an element must transfer information onto other ele-

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ments to exist in other than a null space—a space of insignificance. In other words, it must interact—a neutrino is an example of a particle of physics that almost doesn't exist with other elements. In basis of observation, elements are known by their interactions, or the way they "transform" in an information exchange. A Stupidtheorem in consequence is, "If you never pay any attention to your wife, she will disappear."

That which is uninformative does not exist in the world of information. Thus, the completely familiar does not exist in one universe, that of "information." There are mechanisms for the continuation of existence in a closed universe, called "lying" and "forgetting." There is another mechanism in an open universal system: open in the mathematical sense of undefined boundary. That mechanism is the "secret," or inhibited interaction. The value of a secret is to continue the existence of that, which if known, would disappear. No, not mysticism or psychology, just meaning theory. Military secrets continue the existence of military values which would vanish if the secrets were "known."

It is interesting to observe that information may be given the enemy and the secret maintained if the enemy cannot perform the inverse. The purpose of "codes" and "cryptograms" is to circumvent the construction of the inverse. We can immediately devise an interesting code. Using a two-dimensional matrix, code the coordinates on alternate symbols. The symbols now define multiple elements and their intersections define single elements. Instead of "element" significance, we now have "successor" significance. The abstraction used was the non-invertibility out of context of a transformation of a two-space into a one-space. The concealed inverse is a sufficient condition for secrecy in a knowledge space.

At this point it is time to put your feet on the table, relax, and mull at the ideas. While you mull at the ideas, I'll engage in conversation. If information were not transformable from one carrier to another, perception of our environment would be impossible. You can look at a brick building and say, "There is a brick building" without getting a brick in your eye. Just the information the brick carries, which is accessible for transformation by light as a secondary carrier, is enough. You can read a story in Analog, and because the information is transformable, enjoy the imagination of the author, without being the author. All you need is the information from the author and the ability to apply an inverse—which you know applies to words—to enjoy translation in time, space, and idea. Cheers for the transformable, invertible, information. But, pause, information can be conveyed from author to reader, but the reader

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must supply the inverse himself. Sounds like, "Beauty is in the eye of the beholder," but we now know that is only a half truth.

Years ago, I made the observation that a man of great subtlety could paint a picture which only deep insight could wholly appreciate —form the inverse, that is. If an inept adept views this great work, he sees "noise," in its information theory sense—information without inverse. This inept adept then sets about painting noise, and is unable to know—form the inverse—the difference, and unable to understand —from the inverse—why the man of great subtlety is outraged. The Stupidtheorem in consequence is, "You can't tell a man something that he doesn't understand and expect him to make use of it." And the Stupidtheorem, "The probability of doing something really new *and* being understood is zero." And "The complete in-group knows everything there is to know—for it." That is more of a *definition* of a *complete in-group.* I have also termed it "closure" when applied to an individual.

An educational process to be valid must include both transformation and inversion. An immediate consequence is that doing something with your education—returning the information to its source—is essential to the development of knowledge. One way to simplify this requirement is to form the complete in-group. The information then needs only to be conveyed to other members of the group in order to create knowledge—of the kind defined over the in-group. It's an old game to restrict the possibilities in order to increase the probabilities, and the true meaning of "freedom" may possibly be found as contrary to the meaning of "closure." If knowledge requires the return of information to its source, or development of predictability, then unapplied knowledge is a null-set. From this I may say that the only knowledge which can be had for its own sake must then be of measure zero—no value—in a free world.

In the development of the understanding of human localization of sound, the first demonstration was that bending the external ears distorts the knowledge of location. The immediate requirement, since the hearer is still "informed," is that the customary *inverse* is no longer applicable, and thus the pinna, or external ear, must be supplying the transformation. In a sense, the essential character of the problem was solved within seconds of the demonstration. The mathematical formulation took four years of experiment, experience, and analog formation. Now you can listen to one of our tapes, use your customary inverse, and be in the place where the recording was made. But you can't do this if you insist on an inapplicable transformation to which the customary inverse does not apply. The requirements of fidelity and

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structure for the correct transformation must be observed. We are also now able to produce a synthetic signal for you to identify as located in a particular place, using your customary inverse, but the transformation this time is mathematically translated through electronics. Analog carries the same information, reduced by the same rules.

Just for conversation, hallucination might be described as performing an inverse on an arbitrary coding of information. Since the *inverse* provides knowledge, any organism which can know, can be hallucinated. And a moment's thought leads to a consideration of hypnotism as in part a separation of the inverse process from the transformation. If one is willing to believe—form the inverse—on an arbitrary coding, then one may "see" the scene coded onto words, decoded and inverted by the speech recognition process, this coding providing the input to the visual inverse process and thence to sight. After all, a magnetic tape can provide television pictures. It is also interesting to identify a "belief" as a "tentative inverse," useful to the evolving entity in exploring his world but to be retained, modified, or discarded upon testing. I will use this point to make a consistent statement in and about "Meaning Theory"—if it doesn't work, don't believe it.

Conversationally, regarding dimensionality, have you met my proof that I can't tell you what I think? In order to permit an inverse, I must preserve dimensionality in the transformation. And speech has only the dimensions of time and pressure. When I see, however, I can locate a point in time, three-dimensional space, color, and brightness—six dimensions in all. Clearly, I can't tell you what I see; I can't retain the dimensionality. And I claim to think in at least as many dimensions as I see. If I can tell you what I see, how could I possibly tell you what I think? If I take this argument alone, the difficulty is clear. But is it possible to quantify both into pieces and convey equivalence bit by bit? Seems likely, this reduces both to zero dimensionality —finite number of elements—and the problem disappears. If I permit myself inaccuracy in order to quantify, I escape from a continuum thereby. Is it possible that a quantum theory is necessary to give meaning—provide an inverse—to experience in physics?

An argument I have used frequently may come alive long enough to provide some meaning. I perform an experiment in a room with a rectangular coordinate system and a thermometer. I write coordinates and temperatures in a table of measurements. Then I look at the table of measurements and ask my assistant to re-locate the coordinates at which I recorded the temperature of seventy-three degrees. Can he do it? Not in a continuum; there he must find the two-

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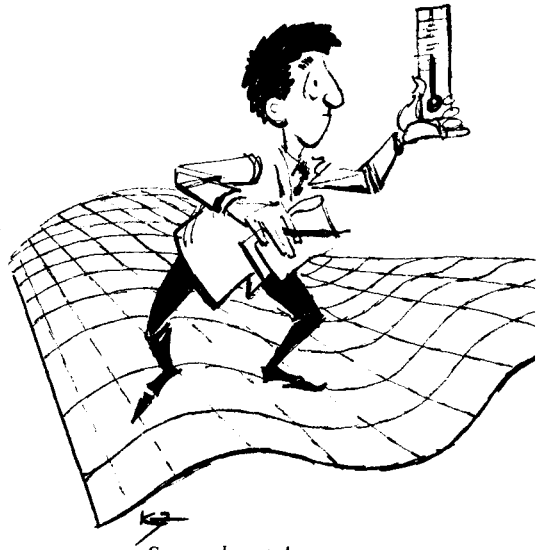
dimensional subspaces (surfaces) to which the transformation from three dimensions (room) onto one dimension (temperature) reduced the information. The inverse does not exist point to point with respect to the original transformation. Can I derive meaning? Yes, of course, the process constructs isothermal surfaces; that is the meaning of the experiment. That is the significance of the transformation and the inverse which could be constructed. Thus, meaning, knowledge, and understanding of an experience seem to reside in the inverse which *can* be constructed from it. The Stupid-theorem in consequence is, "Every experiment turns out right." (It may not be according to your initial belief!)



So—relocate!

When the problems of constructing inverses to the transformations of perception are examined, we frequently see the need for hedging exact inverses, and generally find two ways to avoid them. The first way is to do as we did regarding the thermometer and the room. We find that subsets of the original, or primitive, space have transformed onto points in the perception, or presentation, space. In this case the inverse identifies only the particular subset, or subspace, correspondence, and loses a lot of information thereby. Reduction by an order of infinity, to be precise, from area to line. (These are not Cantor's infinities.) The second way to cheat on the inverse is to define probabilities over the primitive set, or measured subsets, and correspond the perceived point to a measured subset, in which there is only a distribution of probability of the correspondence being exact. This *also* reduces the information space by an order of infinity, if the points in the presentation are also considered as particular selections from a continuum of points possible. It seems to be that the second is almost always the case, in that every instrument has some limit to its resolution or tolerances. The first is accomplished when insufficient kinds of measurement are made to provide a sufficient dimensionality, and the second is done by each instrument. In each case, information is lost and noise

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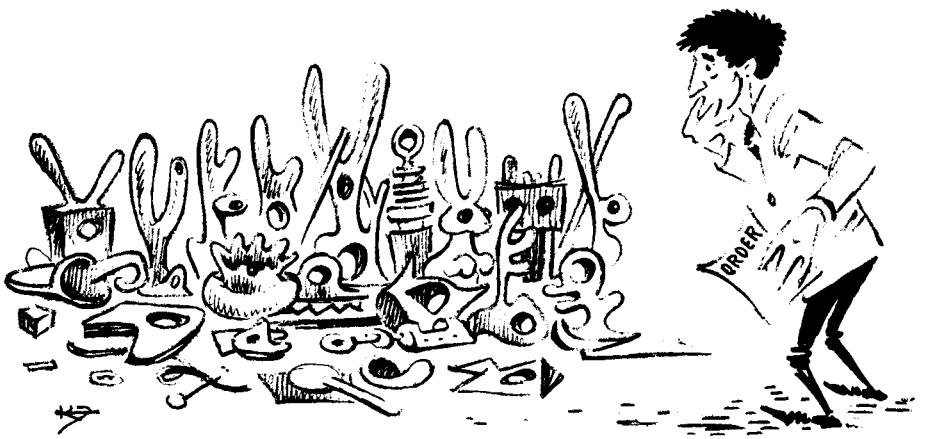
is added. When an inverse is constructed, the information returned is inevitably less than received, and knowledge is imperfect. There does seem to be possible some process, such that by repeated experiences, a perfect inverse can be implied. We may also appeal to "Communication Theory" (Shannon and Weaver) to assure us the message can be received perfectly through noisy channels.

In retrospect, absolute truth seems to be related to the perfect transmission of a message through a noisy channel. Theoretically, a message can be sent one hundred percent invertible, yet absolutely correct, through a noisy channel if the proper coding and rate are observed. How to relate this to the number of experiments required to derive the perfect inverse remains a mystery to me, although one could write equations to describe the conditions. (A side remark, the more informative the primitive information in the experiment, the more experiments required to get the message). The Stupidtheorem in consequence is, "A natural phenomenon becomes easier to observe with each experiment exhibiting it." Or "It is easier to see something if you know what you are looking for." This reasonable consequence also leads to Batteau's First Law of Laws of Physics, "Make 'em up as you go along." A truly valuable consequence, however, is that having a hypothesis improves your experimentation. As Lancelot Biggs would say, "Get the theory first." The hypothesis, or precursor of theory, is a tentative inverse.

See what I mean? ■



It is easier to see something if you know what you're looking for . . .

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THIS IS ENGLISH

A number of suggestions for the "This Is English?" Department were sent in; most of them consisted of extremely involved and highly specialized technicalese. Organic chemistry, for instance, is rife with incredible jaw-breaking tongue-twisters; even simple things like thulliothallothiophthallate can be difficult.

But those aren't properly English; they're clearly Technicalese, not only in vocabulary but in grammar.

The choicest "This Is English?" samples should have no special-vocabulary words—only plain, common English words with which we are all familiar. Take "dog," for instance—a familiar word; everybody knows that a dog is a metal catch used for locking hatchways and such to resist pressure. Or, for that matter, a spoon is an instrument used for getting the ball off the fairway with a bit more loft, while a loft is a warehouse for storing goods.

The following excellent example was contributed by Robert K. McGrane—for which we gleefully contribute ten dollars to him:

"If X is an indiscrete space the interior of every set except X itself is void. If X is a discrete space, then each set is open and closed and consequently identical with its interior and with its closure. If X is the set of real numbers with the usual topology, then the interior of the set of all integers is void; the interior of a closed interval is the open interval with the same endpoints. The interior of the set of rational numbers is void, and the closure of the interior of this set is consequently void. The closure of the set of rational numbers is the set X of all numbers, and the interior of this set is X again. Thus the interior of the closure of a set may be quite different from the closure of the interior; that is, the interior operator and the closure operator do not generally commute."

"If a universal net is frequently in a set it is eventually in the set. Hence a universal net in a topological space converges to each of its cluster points."

See . . . practically every word is a good, old familiar English word! How many times have we had District Attorneys refer to "open and closed" cases, for instance? Now we know they're identical with their interior and their closure. *Tsk tsk!*

Incidentally—that first "This Is English?" item came from *Chemical & Engineering News,* published by the American Chemical Society, and was part of a discussion of ore treating processes. In its proper context, it was a sound, clear, and succinct description of the system. ■

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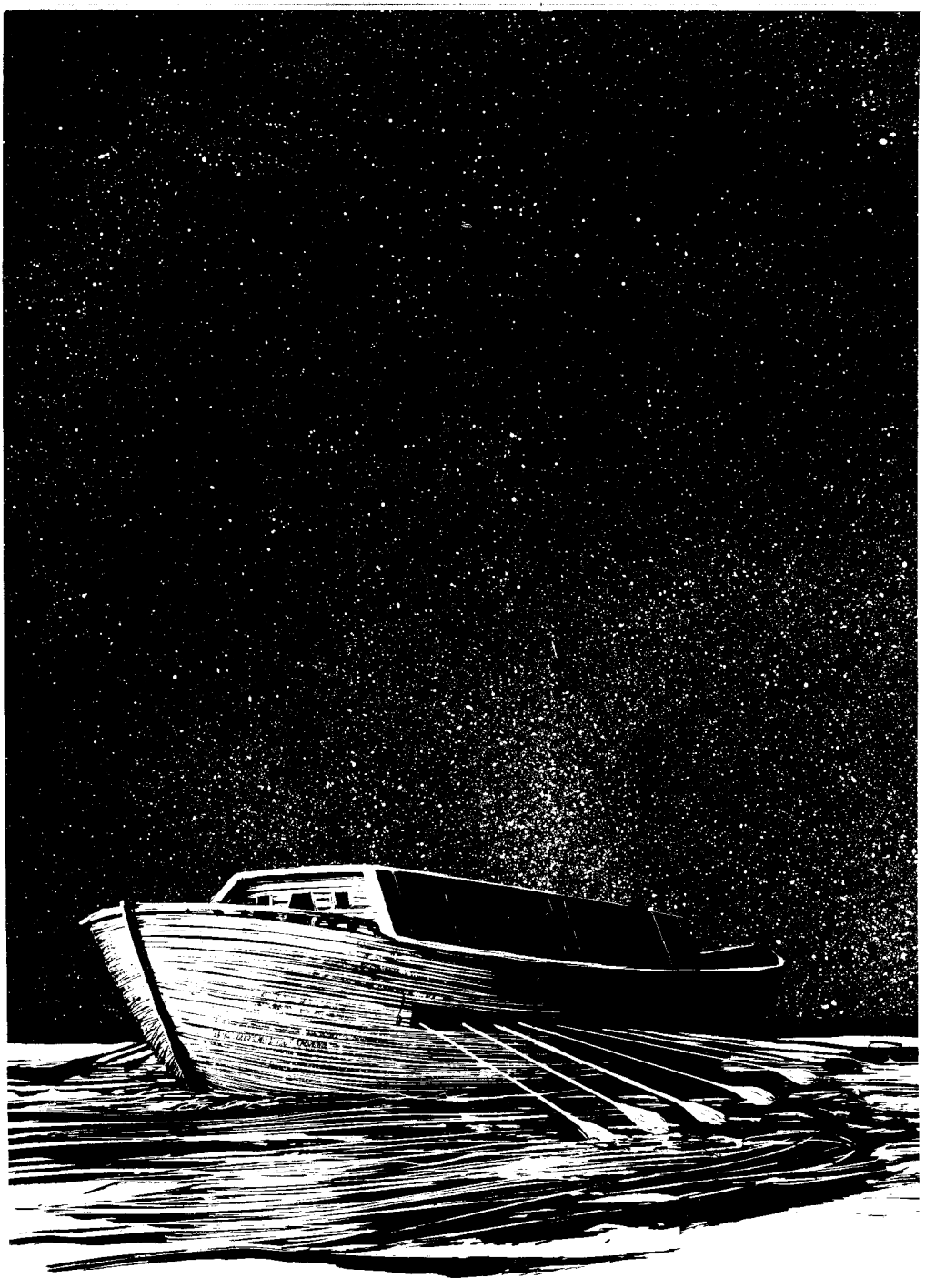

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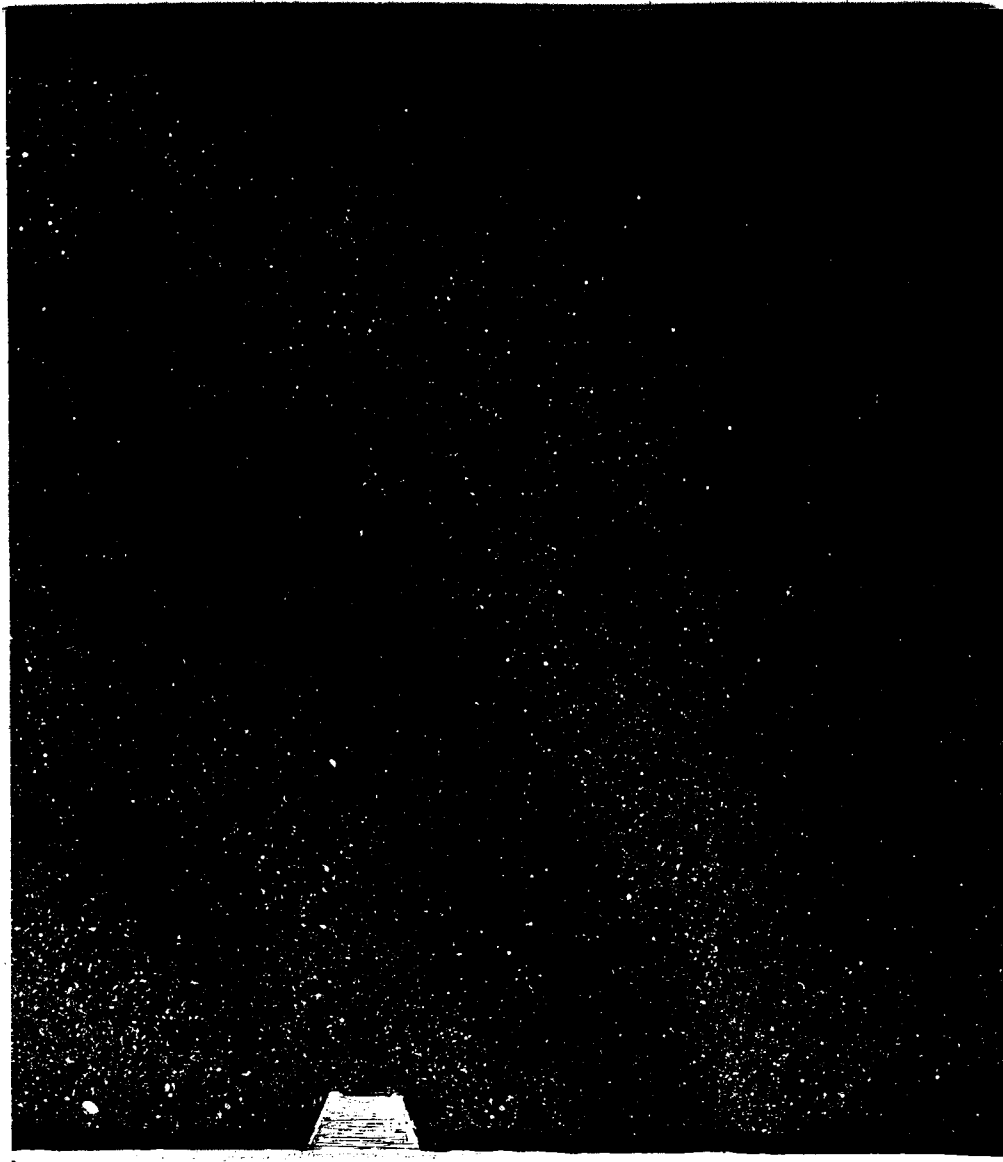

THE ANCIENT GODS | POUL ANDERSON

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Second of Two Parts.

The living gods of AiChun were older than Earth itself—and their multi-billion year history gave them reason to know they were gods!

Illustrated by John Schoenherr

Mary O'Meara, the stars and the dewfall have covered your hilltop with light.

The wind in the lilies that blossom around you goes bearin' your name from the height.

My girl, you are all of the night . . .

The first time I heard Hugh Valland's song to his beloved was in a satellite base which the Guild had established around Landomar. That planet lies near the edge of the galaxy, and I was recruiting for an expedition to intergalactic space. The stars are so thinly scattered out there, and such dim red dwarfs, that our civilization was hardly aware of them until explorers arrived from one. They'd contacted a factor of my company and invited us to visit them. The difficulty of establishing communication with nonhumans seemed even greater in this case than usual. Also, the factor was in a hurry, so that we could get out and establish a foothold, in case the region should turn out to be profitable, ahead of the competition. But we did have the data necessary to find that star; or so we thought. My ship, the Meteor, *was to make the initial survey.*

I was glad to get Valland for gunner and deck officer. He was a big, cheerful, thoroughly competent fellow with a vast amount of spacefaring experience. Of course, he was odd in some ways. For instance, he cared about no other woman than his Mary O'Meara; yet he'd leave her on Earth for years at a time while he wandered, without so much as taking her picture along—only the verses of his song.

But then, we're all eccentric, one way or another. That goes along with never growing old. Sometimes we're a bit crazy, even. When the time comes, as it periodically does, that we get our memories edited lest the accumulated data become too much to handle, we haven't the heart to forget some things. So they grow in us till we no longer have a sense of proportion about them. Valland's fanatical monogamy was a mild case compared to some I've known. And,

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to be sure, he was one of the oldest men alive, almost three thousand years; the antithanatic had been developed in his lifetime.

I worried more about our electronician, Yo Rorn, a silent and surly man who had almost nothing to say about his own past. But things went smoothly enough while we matched velocities and prepared for the space jump across a quarter million light-years.

We made it—and found ourselves on top of a planet. There was no time to pull free. We did manage a crash landing in a great lake, with half a dozen survivors: Valland, Rorn, Bren, Galmer, Urduga, and me.

The planet rotated slowly under its red dwarf sun; it was low of landscape, hot, wet, metal-poor; the air was breathable, but we couldn't eat the local life. We established camp on shore, including a plankton tank, and wondered what to do.

Evidently, through some misunderstanding, we had been given the coordinates of the innermost world of the system where we were bound. The "Yonderfolk" we were supposed to visit lived not much farther out; we could see their home in the night sky; but how could we get their help? They probably didn't use radio, and we couldn't repair our space-jump communicator. Certainly we couldn't do much with the wrecked Meteor. *When we failed to report back, after several years, another expedition would come. But how likely was it to happen on us, even if we survived?*

Valland insisted we could save ourselves. And would, too—he wanted to get back to Mary! It began to seem as if we might, by cannibalizing, put one of the auxiliary boats back in good enough order for a flit to Yonder. But the job would take years at best, and was impossible without a larger labor force than we had.

Maybe we could get help, though. For the planet had natives. The first ones we saw at a distance, in canoes, and they fled from us. But afterward some hill dwellers visited our camp. They were high-level savages, called themselves the Azkashi, and were divided into groups not quite like clans or tribes, which we named Packs. The chief of this particular band was ya-Kela, a religious as well as political leader. The Azkashi identified the galaxy, a huge object in their sky, with God. Hence our claim to be from there raised considerable excitement and some skepticism. But in the course of studying the language, Valland got friendly with ya-Kela and accepted an invitation to return home with him for a while.

Soon after, a galley and several big canoes arrived. They were manned by another faction, an entirely different culture, the Niao. To the Azkashi, the Niao were scornfully known as the Herd—servants of those beings whom the hill folk dreaded and hated and named downdevils. They were indeed bred into

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different specialized types. But they possessed an advanced neolithic-ceramic technology and their leader, Gianyi, seemed an intelligent sort. He had a language in common with me, one that the Yonderfolk used. They had had a scientific base on this planet a long time ago, until they discovered the space jump and deserted it for worlds circling other stars, more congenial to their type of life. The masters of the Niao had preserved the language.

Gianyi insisted that we accompany him back to those overlords, the Ai Chun. We didn't like the idea but had small choice, especially as this more civilized nation might well prove better helpers to us than the Azkashi. We were glad to reach a compromise: that Rorn and I go as delegates, leaving Bren, Galmer, and Urduga behind.

And Valland also, of course, up in the hills. When I told him via radio, ya-Kela deduced the truth. In his hatred of Herd and downdevils, who had been pushing his people from their hunting grounds since time immemorial, he was about to kill Valland. But the gunner managed to get taken as a hostage instead.

Part 2

The galley walked fast over the water. Except for creak and splash of oars, soft thutter of a coxswain's drum, an occasional low-voiced command, it was too silent for my liking. Torches lit the deck built across the twin hulls. But when Rorn and I stood at the rail, we looked into murk. Even with goggles, we saw only the galaxy and its wave-splintered glade; the accompanying canoes were too far out.

Rorn's gaunt features were shadow and flicker beside me. "We're facing something more powerful than you maybe realize," he said.

I rested my hand on my gun butt. Its knurls comforted me. "How so?" I asked.

"Those boats which first came, and ran away, they must have been from the place we're headed for now. What's its name again?"

"Prasiyo, I think."

"Well, obviously they simply chanced on us, in the course of fishing or whatever. The crews were ordinary unspecialized Niao, we saw that. But they didn't take the responsibility of meeting us. No, they reported straight back to Prasiyo. Now normally, you know, given a generally human-type instinct pattern, a technological-geographical situation like this one makes for individualism."

I nodded. Tyranny gets unstable when a cheap boat can pace a warship and there's a wilderness for dissatisfied people to vanish into. The Niao had not fled us because of timidity. Their harrying of the Azkashi proved otherwise. So the Niao must *like* being subservient.

"Nevertheless," Rorn continued, "it took some while before this dele-

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gation arrived. That means it had to be organized—authorized. Which means word had to get back to a distant front office."

"Now that needn't take long, given telepathy."

"My exact point. The masters, therefore, debated the matter at length and took their time preparing to contact us. There's also the business of the Yonder language having been preserved so long and carried so far. What these clues point to is: We're on the marches of a very big and very old empire."

I was surprised. Rorn hadn't seemed capable of reasoning so clearly. "Makes a good working hypothesis, anyhow," I said. "Well, if we can get them to help us, fine. They'll have more resources, more skills of the kind we need, than the Pack does. Of course, first we have to get Hugh back into camp with us."

Rorn spat.

"You don't like him, do you?" I asked.

"No. A loud-mouthed oaf."

"He's your crewfellow," I reminded him.

"Yes, yes. I know. But if matters should come to a pass—if we can only save ourselves, the whole remaining lot of us, by abandoning him—it won't weigh on my conscience."

"How would you like to be on the receiving end of that philosophy?" I snapped. "We orbit or crash together!"

Rorn was taken aback. "I didn't mean—Captain, don't think I—"

Ghostlike in his robes and hat, Gianyi glided to me. "I have thought you might be shown the ship," he offered.

We were both relieved at the interruption, as well as interested in a tour, and followed him around the deck. The cabin assigned us was pretty bare. The others, for Gianyi and three more Niao of similar rank, were a curious blend of austere furnishing with ornate painted and carved decoration. I noticed that two symbols recurred. One was a complicated knot, the other a sort of double swastika with a circle superimposed. I asked about them.

Gianyi bowed deep. "The knot is the emblem of the Ai Chun," he said.

"And this?"

He traced a sign on his breast. "The *miaicho* bound fast by the power of the solar disc."

A few minutes later, I observed that helmsmen and lookouts wore broad hats with that second insignia on them. I asked why. Gianyi said it was protection against the miaicho.

Rorn was quick to understand. He pointed at the immense spiral in heaven. "That?"

"Yes," Gianyi said. "Its banefulness is great when there is no sun at the same time. We would not have crossed the water tonight had the Ai Chun not commanded."

So, I thought, the God of the Azkashi was some kind of demon to the Niao. Just as the Niao's vener-

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ated Ai Chun were the downdevils of the Pack . . .

Gianyi made haste to take us below. The hull, like everything else, was well built. No metal anywhere, of course; ribs and planks were glued, then clinched with wooden pegs. Construction must have been a major job. Gianyi admitted there was just this one ship on the lake; otherwise only canoes were needed, to fish and to keep the savages in their place. But whole fleets plied the oceans, he said. I was prepared to believe him after he showed me some very fine objects, ceramic and plastic as well as polished stone.

The crew intrigued me most. The rowers worked in several shifts on a well ventilated, lantern-lit deck. They were all of a kind, with short legs, grotesquely big arms and shoulders, mere stumps of tail. Some fighters were on board too, like the colossus I had already seen. To our questions, Gianyi replied that other types of Niao existed, such as divers and paddy workers. He himself belonged to the intellectual stock.

"You may only breed within your own sort?" I asked.

"There is no law needed," Gianyi said. "Who would wish to mate with one so different, or keep alive a young which was not a good specimen? Unless, of course, the Ai Chun command it. They sometimes desire hybrids. But that is for the good of all the Niao."

When I had unraveled that this was what he had actually said, and explained to Rorn, my companion reflected in our own tongue: "The system appears to operate smoothly. But that has to be because hundreds, thousands of generations of selective breeding lie behind it. Who enforced that, in the early days?" I saw him shudder. "And how?"

I had no reply. There are races with so much instinct of communality that eugenics is ancient in their cultures. But it's never worked long enough at a time for others, like the human race, to be significant. You get too much individual rebellion; eventually some of the rebels get enough power to modify the setup, or wreck it.

So perhaps the autochthones of this planet did not have human-type minds after all?

No—because then how did you account for the Azkashi?

In spite of the temperature, we felt cold. And belowdecks was a cavern, full of glooms, lit by no more than a rare flickering lamp. We excused ourselves and returned to our little room. It had only one sconce, but we stuck spare candles in their wax around us.

Rorn sat down on his bedroll, knees hugged to chin, and stared at me where I stood. "I don't like this," he said.

"The situation's peculiar," I agreed, "but not necessarily sinister. Remember, the Yonderfolk suggested we might base ourselves here."

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"They supposed we'd arrive with full equipment. Instead, we're helpless."

I regarded him closely. He was shivering. And he had been so competent hitherto. "Don't panic," I warned him. "Remember, the worst thing that can happen to us is no more than death."

"I'm not sure. I've been thinking and . . . well, consider. The Ai Chun, whoever they are, haven't much physical technology, for lack of metal. But they've gone far in biology and mentalistics. Consider their routine use of telepathy, which to this day is too unreliable for humans. Consider how they could regulate the Niao, generation after generation, until submissiveness was built into the chromosomes. Could they do the same to us?"

"A foul notion." I wet my lips. "But we have to take our chances."

"Harder for me than you."

"How so?"

He looked up. His features were drawn tight. "I'll tell you. I don't want to, but you've got to understand I'm not a coward. It's only that I know how terrible interference with the mind can be, and you don't."

I sat down beside him and waited. He drew a breath and said, fast and flat, eyes directed to the front:

"Faulty memory editing. That's not supposed to be possible, but it was in my case. I was out in the Frontier Beta region. A new planet, with a new med center. They didn't yet know that the pollen there has certain psychodrug properties. I went under the machine, started concentrating as usual, and . . . and I lost control. The technicians didn't see at once that something was wrong. By the time they did, and stopped the process— Well, I hadn't lost everything. But what I had left was unrelated fragments, insufficient for a real personality. Worse, in a way, than total amnesia. Yet I couldn't bring myself to wipe the slate clean. That would be like suicide."

"How long ago was this?" I asked when he stopped to gulp for air.

"Forty-odd years. I've managed to . . . to restructure myself. But the universe has never felt quite right. A great many very ordinary things still have a nightmare quality to them, and—" He beat the deck with his feet. "Can you imagine going through something like that again?"

"I'm terribly sorry," I said.

He straightened. His aloofness came back to him. "I doubt that, Captain. People have to be far closer than we are to feel anything but a mild regret at each other's troubles. Or so I've observed. I spend a lot of time observing. Now I don't want to talk further about this, and if you tell anyone else I'll kill you. But take my advice and watch your mind!"

We came to Prasiyo in darkness, and left in darkness, so to me it was

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only torches, shadows, sad strange noise of a horn blown somewhere out in the night. Afterward I saw it by day, and others like it; and as I became able to ask more intelligent questions, the Niao I met could give me better answers. Thus I learned a great deal, and never in my traveling have I met a society more outlandish.

But that's for the xenological files. Here I'll just say that Prasiyo wasn't a town, in the sense of a community where beings lived in some kind of mutual-interest relationship, with some feeling of common tradition. *Prasiyo was only a name for that* lakefront area where the docks happened to be. This made it convenient to locate certain workshops nearby. So the igloo-shaped huts of the Niao clustered a bit thereabouts —unlike in the wide, wet agricultural region that stretched behind Lake Silence, on and on to the ocean. Yes, and still farther, because there were Niao who had been bred for pelagiculture, too.

The Pack maintained a true community, in these lairs where Valland was now a prisoner. Later we found that there were other savages, in other wild parts of the world, who did likewise. Some of them had progressed to building little villages. But the Niao, who appeared to be civilized, had nothing of the kind anywhere. For they were the Herd, and herds don't create nations.

Neither do gods.

Our galley didn't go to the wharf. Instead, we moored alongside a structure built some distance offshore: a square, massive stone pile that loomed over us in the night like a thundercloud. Lanterns picked out soldier Niao guarding the ramparts. Helmeted and corseleted, armed with knives, pikes, bows, catapults, they stood as if they were also stone. Gianyi and his three fellow scribes conducted us off ship, in a stillness so deep that the gangplank seemed to drum beneath our feet. The blind dwarf scuttled after us. They all bent low in reverence to the gate.

"What is this?" I asked.

"*The house that is kept for the* Ai Chun, when they choose to visit us here," Gianyi said mutedly. "You are honored. No less than two of them have come to see you."

I had a last glimpse of the galaxy before we entered. The sight had always appeared unhuman to me before—lovely, but big and remote and indifferent. Now it was the one comfort I had.

Lamps burned dim down the wet, echoing length of a hall. There was no ornament, no furniture, only the great gray blocks. We passed through an archway into a room. It was too broad and feebly lit for me to see the end, although I had my goggles on. Most of the floor was occupied by a pool. I conjectured rightly that this place must connect with the lake by submarine passages.

The downdevils lay in the water.

A physical description would sound like any amphibious race.

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They were pinnipeds of a sort, about twice the length and several times the bulk of men. The sleek heads were notable chiefly for the eyes: not so large as those of the bipeds, a very beautiful luminous chalcedony in color. Evolution had modified the spine so that they could sit up when on land. And I suppose the front limbs had developed digits from internal bones—because what I saw was a flipper with four clumsy fingers.

The sea doesn't often bring forth intelligence. But under special circumstances it can happen. The dolphins of Earth were a famous example. If they had gained the ability to go ashore, to travel cross country in however awkward a fashion, who knows what they might have become? I think the environmental challenge that brought forth the Ai Chun occurred billions of years ago. As the planet lost hydrosphere—which happened slowly indeed, under so chill a sun; but remember how old this world was—more and more dry land emerged. With so many ages behind it, the life that then, step by step, took possession, was not modified fish as on Earth. It was life already air-breathing, with high metabolism and well-developed nervous system. New conditions stimulated further development; you don't need hard radiation for mutation to occur, thermal quantum processes will do the same less rapidly. At last the Ai Chun came into being.

I think, too, that there was once a satellite, large and close, which lit the nights until finally the sun's field, intense at this short remove, perturbed it away. Or maybe the Ai Chun evolved when the planet had a permanent dayside. For their eyes weren't well adapted to the long nights they now faced. They had substituted firelight for the optic evolution that had taken place in younger species. Perhaps this is the reason they hated and feared the galaxy. In the day sky it was invisible to them, but on alternate nights it ruled the darkness.

All that is for the paleontologists to decide. It happened so long ago the evidence may have vanished.

What mattered to Yo Rorn and me, confronting those two beings, were their words. They did not deign to speak directly. They would have had trouble using the Yonder language anyway. The dwarf opened his mouth, moved his arms, and said:

"Through this creature we address you, as we have already observed you from afar. You are kin to those which dwelt here for a space, numerous years ago, claiming to be from above, correct?"

"There is no blood relationship," I said. My heartbeat knocked in my ears. "But you and we and they, like the Niao and the hill people, are thinking animals. I believe this is more important than our bodily shapes."

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Gianyi made an appalled hiss. "Have you forgotten whom you speak to?" he cried.

"No offense intended," I said, wondering what local custom I'd violated. "Since you have followed our discussions with your . . . your servants, you know we are ignorant and need help. In exchange we offer friendship as well as material rewards."

"Say further," commanded the Ai Chun.

They drew me out with some extremely shrewd questions. They had forgotten little of what the Yonderfolk had evidently told them. I explained our background, I spoke of the galaxy, its size and distance, the millions of worlds and the powerful races which inhabited them— Why did the scribe, the will-less dwarf himself, cringe?

Sweat glistened on Rorn's skin. "You're telling them the wrong things," he said.

"I know," I answered. "But what's the right thing?" I dropped hand to gun—started to, but my arm wouldn't obey. It was as if the muscles had gone to sleep. With a curse, I focused myself on the task. My hand moved, jerkily, to clasp the butt.

Rallying nerve, I said: "Are you trying to control me? That is no friendly act. And you can't, you see. Our minds are too unlike."

A part of me thought they must also have tried this on the Yonderfolk, and failed so completely against brains based on hydrogen and ammonia that the attempt wasn't noticed. Otherwise we'd have been warned. Then the Ai Chun dissembled, hid their real nature like the hidden part of an iceberg, gave the impression of being harmless primitives. A telepathic folk with a unified, planetwide culture could do that.

In our case, they didn't bother. They knew far too well that no one would avenge us. The dwarf's monotone said:

"We dismissed the former visitors, and we shall not let you run free in the world. Have no fear. Your potential usefulness is admitted. While you obey, you shall not be harmed. And when you grow old you will be cared for like any aged, faithful Niao."

Rorn and I moved until we stood back to back. The scribes edged off into a dark corner. One downdevil raised himself higher, so that the lamplight gleamed on him. The dwarf spoke:

"We have pondered what reason we might have had in the beginning to bring forth creatures like you and those others. Where we do not supervise it, life on shore often develops in curious ways. Perhaps you do not yourselves know your ancestral history. However, you are ordered at least to desist from telling falsehoods. For we believe now that your existence is not accidental but intended."

Rorn whimpered. "They're in my mind. I can feel them."

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"Shut up and keep ready to shoot" I told him.

I felt it myself, if "felt" is the right word. Unbidden images, impulses, bursts of terror and anger and bliss and lust, a stiffness in my body, my clothes drenched and stinking with perspiration. But the impressions were not intense—about like a mild drunkenness, as far as their power to handicap me went. I told myself, over and over: These beasts are projecting energies of a type that've been known to our scientists for hundreds of years. They want to stimulate corresponding patterns in my brain. But I belong to another species. My neurones don't work like theirs. I won't give them a chance to find out how I do work. And remember always, in spite of the horror stories, nobody can be "taken over" who keeps his wits about him. It's physically impossible. You're closer to your own nervous system, and better integrated with it, than anyone else can be.

I clamped my teeth for a moment, then started asking questions.

Abruptly the disturbances in my head stopped. Maybe simply because of the contrast, I felt more in possession of myself than ever before in my life. So for hours I stood talking. All the while, Rorn was silent at my back.

The downdevils responded to me with cold candor. No use trying to reproduce our discussion as such. I don't remember the details. And naturally our conference was often interrupted by explanations of some new term, by arguments, by cogitation until a meaning became clear. They didn't press me, those two in the pool. They weren't in the habit of hurrying. Besides, I slowly saw, they were quite fascinated. They didn't hate us any more than we would hate a pair of wild beasts we had captured for study and possible taming.

At least, there was no conscious hatred. Down underneath, I don't know. We threatened their whole existence.

You see, they were gods.

It was not just that their Niao worshiped them. I doubt the Niao did, anyway, in the humanlike sense in which you could say the Azkashi worshiped the galaxy. The Niao were devoted to the Ai Chun as a dog is to a man; they'd been bred for that trait; but aside from a few gestures of respect, they didn't conduct ceremonies. For that matter, the Ai Chun had no religion, if you mean by that a belief in a superior power.

No, they simply thought this was the only world, the whole universe, and they had created it.

The idea was not crazy. This planet showed few phenomena to inspire awe, like stars, or volcanoes, or seasons. The Ai Chun had existed in their present form for over a billion years, I imagine. Their natural enemies were exterminated before their recorded history began. In spite of

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much empirical knowledge, they had never developed a true science. They did not quarrel with each other, they parceled out the world and refrained from overbreeding. One generation lived exactly like the next. Their culture was sufficiently complex that intelligence didn't atrophy; but change was so slow that there remained vast land areas they had not so much as explored. Only lately had their minions been pushing into the Lake Silence region—and not in any pioneer rush, but by calculated degrees. Theirs was a static world.

Individual Ai Chun suffered accidents, grew old, died. That didn't matter. They believed in reincarnation. So it was reasonable to imagine that at some time in the past, in earlier lives, they themselves had made the universe. It was an obvious analogy to the building and stockbreeding they now practiced. Likewise, they knew they made occasional mistakes in their present lives —which accounted for unruly elements in the cosmos.

Besides, had they not, within historical times, added a thinking race to the world?

They had. I saw no reason to doubt their claim. Being poorly adapted to dry land, they domesticated a promising bipedal animal and spent half a million or so Earth-years breeding it for intelligence and dexterity. That was the last great advance their frozen society had made. Now the Niao did for them what they were not able to do for themselves.

Of course, intelligence is a tricky thing. And without techniques of molecular biology, you can never get every wild gene out of a stock. Certain Niao, here and there on the planet, for one reason or another, had gone masterless into new territories. There the demands of an independent life had quickly winnowed out submissiveness. An instinct of devotion remained, making for religion and mutual loyalty. The end result was the Azkashi and other cultures—feral.

The Ai Chun were not alarmed. They thought in million-year terms. They didn't let their Niao expand fast—that could have introduced upsetting factors. Bit by bit, as agricultural acreage increased, the savages would be whittled away. Meanwhile they posed no real threat.

The Yonderfolk, and now we, did. Not that we desired this wretched planet for ourselves. But our attitude was an insult. Our claim to be from other worlds in an unimaginably big and complicated universe ran into the teeth of a mythology that was old while the dinosaurs still lived. Our machines, our weapons, something as simple as a steel knife, had not been dreamed of here and could not even be copied. By existing, we doomed this whole culture.

The Yonderfolk hadn't stayed long enough to do more than shake the Ai Chun. What they had taught was preserved and brooded on. Now

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we were here, still another race. But this time the intruders were few and vulnerable. If we could be subjected, that would prove we were inferior. Then the Ai Chun could assure themselves that outsiders like us had also been created by them in the distant past, for the purpose of inventing things which we would now offer to our gods.

I argued. I tried to show them the pathetic, ridiculous futility of their scheme. I said we couldn't possibly give them more iron than there was in our ship; and, if we built them plants to extract light metals, they could still make only the most limited use of the stuff; and, if our people should decide to base on this planet, there wouldn't be one damned thing the Ai Chun could do about it; and, if they cooperated with us we could offer them infinitely greater rewards— Useless. Such concepts didn't lie within their horizon.

Yet they were neither stupid nor mad. Only different from us.

"The seed we planted long ago is bearing its fruit," said the voice of the dwarf. "We will occupy your camp and put you to work."

"Like fury you will!" I drew my gun. Their minds didn't try to stop me.

I fired a beam into the air. The Niao wailed and covered their eyes. The Ai Chun dove. "You see?" I shouted. "We can kill you and every one of your folk. We can seize a boat and sail back. Our friends will not open their gates to you, and their own weapons will burn you at a distance. We do not want to fight, but if we must, then it is you who will be dead!"

A hand closed on my wrist. An arm locked around mine. The gun clattered free. I stumbled from a push. Whirling, I saw Yo Rorn.

His own gun was out, aimed straight at me. "Hold still," he said.

"What the chaos!" I lurched toward him.

"Stop. I'd hate to burn you down." He spoke quietly. Haloed by darkness, his face was altogether serene. "You've lost," he said.

The galaxy was high in heaven when we started back, and the first glimmers of dawn paled it. I still needed my goggles to see; they showed me Lake Silence ice-gray and ruffled by a light wind. Rain clouds grew in the north. The air had turned cold. I stood on the galley deck, looking across to the score of canoes which escorted us, and again felt horror at how quietly the Niao worked.

Down below decks, the two Ai Chun rested in a tank of water. They were going to make a personal inspection after our camp was occupied. Through their sensitives they were in touch with their fellows around the globe. Not only this little fleet was moving against my crew; a planet was.

"No," Rorn said, "they didn't get

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inside me and pull any strings. I'm doing what I want to do."

I couldn't look straight into the nirvana of his eyes. The downdevils were clever, I thought. Sensing his weakness, they had left me alone, holding my attention with talk, while, through hours they studied him. Not that they had battered down any defenses he had. He would have known, then, and appealed for my armed help. But they watched his reactions as one subtle impulse after another was tried. In the end, they understood him so well that they were able to—to what?

I asked him.

"It was a stroke of luck for them that you took me with you instead of someone else," Rorn said impersonally. "They couldn't have operated on a well-developed personality. They've admitted to me it's not possible to tame even a captured savage through mentalistics; he has to be broken first by physical means. And we humans are less kin to them than any Azkashi. But in my case, I didn't have much ego strength. I was a bundle of uncoordinated impulses and poorly understood memories."

"What did they give you?"

"Wholeness. I can belong here."

"As a nice, safe slave?"

"You don't get any closer to the truth with swear words. I was shown something great, calm, beautiful, at peace with itself. Then they took it away. I got the idea: they'd give it back to me if I joined them."

"So you stopped being human," I said.

"No doubt. What was the use of staying human? Oh, in a hundred years or so, I'd have crystallized into your pattern again. But it's a poor one at best, compared to what I have *now*."

I didn't believe he had acted quite freely. Once the Ai Chun got past his feeble resistance, they could explore the neuronic flows until they learned how to stimulate his pleasure center directly. (I wouldn't have allowed them that far in, no normal man would, at least not before techniques like sensory deprivation had made us disintegrate.) But there was no point in telling Rorn that.

Defeat tasted sour in my mouth. "Why do you bother explaining?"

"They told me I should. They want your cooperation, you see."

I made a last attempt. "Try to think," I said. "Your reasoning ability can't be too much impaired yet."

"On the contrary," he smiled, "you wouldn't believe what a difference it makes, not to be insecure and obsessed any longer."

"So think, blast you! I won't remind you of what the rest of us want to get back to, everything from friends and families to a decent yellow sunlight. You've dropped those hopes. But you'll live here for centuries, piling up data that can't be removed, till you go mindless."

"No. They can help me better than any machine."

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"They're not supernatural! They can't do everything—can't do a fraction of what we can—why, we've personally outlived a dozen of them, end to end."

"So I've told them. They say it makes us still more valuable. They're not jealous, being reborn themselves."

"You don't believe that guff. Do you?"

"A symbolic truth doesn't have to be a scientific truth. As a race, at least, they're more ancient than we dayflies can imagine."

"But . . . but even in psychology, mentalistics—they're primitive. They don't speak directly to you, mind to mind, do they?" He shook his head. "I thought not," I went on. "There are human adepts back home who could. If that's what you need, you can get it better from them."

"I tried them once. No good. Not the same as here."

"No," I said bleakly, "at home you weren't offered any return to a womb. You weren't presented with any self-appointed gods. You weren't tinkered with. Human therapists only tried to help you be your own man."

His blandness was not moved. "Evidently I didn't want that, down inside," he answered. "Please understand. I don't bear you ill will. In fact, I love you. I love everything in the universe. I could never do that before." He broke off for a moment, then finished in a flat voice: "This is being explained to you so that you'll see you're beaten and won't do anything foolish that might get you hurt. We humans have an important role to play in this world."

He turned and walked off.

My radio had been confiscated, of course. Rorn used his own set to call ahead. His message was exactly what our men hoped for. The Niao were a civilized people who would be glad to supply us with workers in exchange for what we could teach. The brief stay of the Yonderfolk had wakened an appetite for progress in them. I was remaining behind for the time being to arrange details, and treated like an emperor. The Azkashi could easily be persuaded to release Valland. Rorn was bringing the first work gang—a large one, for the initial heavy labor of salvage.

When the wild edge of Lake Silence hove in view, I was taken below. Tied to an upright, I heard snatches of what went on in the following hours. The first exuberant hails, back and forth; the landing; the opened gates; the peaceful behavior, until all possible suspicions were lulled; the signal, and the seizure of each man by three or four Niao who had quietly moved within grabbing distance of him. I heard the Ai Chun wallow past my prison, bound ashore. I sat in darkness and heard the rain begin.

At last a soldier came to unfasten me. I shouldered my pack and went ahead of him, down a Jacob's ladder

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to a canoe, through a lashing blindness of rain and wind to the beach. Day had now come, tinting the driven spears of water as if with blood. My goggles were blinkered with storm; I shoved them onto my forehead and squinted through red murk. I couldn't see our spaceship. The headland where our compound stood was a dim bulk on my left. No one was visible except my giant guard and the half dozen canoe paddlers. We started off. My boots squelched in mud.

Well, I thought, hope wasn't absolutely dead. After a while, getting no report from us, our company would send another expedition. Presumably that crew would take less for granted than we had done, and avoid shipwreck. In time, a human base might be founded on this planet. They might eventually learn about us, or deduce the truth after seeing things we'd been forced to make for the Ai Chun.

Only, the downdevils, with Rorn to advise them, would have provided against that somehow. And would probably, after we had got their projects organized for them, take time off to give us a good brainwashing and shape us all into Rorns.

I stumbled. The guard nudged me with a hard thumb.

Rage exploded. I wheeled about, yanked his knife from the sheath, and slashed. The flint blade was keen as any steel. It laid open the burly arm that grabbed at me. Yellow blood spouted under a yellow flare of lightning.

The guard roared. I broke into a run. He came after me. His webbed feet did not sink in the mud like mine and his strides were monstrous. He overhauled me and made a snatch. I dodged. His tail swung and knocked me off my feet.

Rain slapped me in the eyes. He

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towered above me, impossibly huge. I saw him bend to yank me up again. He kept on bending. His legs buckled. He went down on his belly beside me, trying to staunch the arterial flow with his good hand. His hearts, necessarily pumping more strongly than mine which had hemoglobin to help, drained him in a few seconds.

The boat crew milled closer. They could have taken me. But they had been bred into peacefulness. I reeled erect and stabbed the air with the knife I still held. They flinched away. I ran from them.

A glance behind revealed that one dashed off to report. The rest trailed me at a distance. I made inland. Thunder bawled in my ears. Rain hissed before the wind. My pack dragged me and the breath began to hurt my throat.

The Niao would not leave me. They kept yelping so that when the soldiers had been alerted they could find us. I was no woodsman, least of all on a strange planet. I belonged out among the clean stars that I'd never see again. There was not one chance of my shaking pursuit, not even in the thickest part of the woods that now loomed ahead.

I glanced down at my stone knife. There was a release. I stuck it in my belt and kept going.

The forest closed about me. My cosmos was leaves, trunks, withes that slapped my face, vines that caught at my ankles, as I plowed through muck. My eyes were nearly useless here. Swamp rottenness choked my nostrils. I heard some wild animal scream.

It was following me. No . . . those were Niao voices . . . they wailed. A lupine baying resounded in answer. I stopped to pant. In a moment's astounded clarity I knew that of course the Pack had kept a suspicious watch on us. Beneath every fury and fear, I must have remembered and hoped—

When the Azkashi surrounded me I could just see them, four who looked saurian in the gloom. Their weapons were free and the rain hadn't yet washed off every trace of the butchery they had done.

I summoned my few words of their language and gasped, "We go. Shkil come. Go . . . ya-Valland."

"Yes," said one of them. "Swiftly."

Their pace was unmerciful. I've only the haziest recollection of that trip into the hills. Memory ends with a red sun in a purple sky, well over the crags and treetops that surround the lairs. Hugh Valland meets me. He's kept himself and his outfit clean, but hasn't depilated in some while. His beard is thick, Sol golden, and he stands taller than a god. "Welcome, Skipper!" his call rings to me. "Come on, let's get you washed and give you a doss and some chow. Lord, you look like Satan with a hangover." I fall into his arms.

I woke on a bed of boughs and

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skins, within a painted cave. A native female brought me a bowl of soup made from my rations. She howled out the entrance, and presently Valland came in.

"How're you doin'?" he asked.

"Alive," I grunted.

"Yeah," he said, "I can imagine. Stiff, sore, and starved. But you aren't in serious shape, far's I can see, and we've a lot of talkin' to do." He propped me in a sitting position, and gave me a stimulo from his medikit. Some strength flowed into me, with an odd, detached clearness of thought.

I looked past Valland's cross-legged form, through the cave obscurity to the mouth. There was considerable stir outside. Armed males kept trotting back and forth; the smoke of campfires drifted in to me; I heard the barks and growls of a multitude.

"S'pose you tell me exactly what happened," Valland said.

After I finished, he uttered one low whistle of surprise. "Didn't think the downdevils had *that* much goin' for them." He extracted his pipe, stuffed and kindled it, while he scowled.

"We haven't much time," he said. "I'm almost out of tobacco."

"I'm more concerned about food," I said. "I remember what you took along and what I was carrying. Between us, we might last till sundown."

"Uh-huh. I was tryin' to put the idea in a more genteel way." He puffed for a bit. "The drums sent word ahead to us here, about the Herd enterin' our camp and then about you bein' on your way to us. That last was the best thing you could possibly have done, Skipper. Ya-Kela couldn't have protected me for long if the Pack figured my people had sold out. As it was, I got Rorn on the radio. He was pretty frank about havin' taken over on behalf of the downdevils, once he knew I knew you'd run off. He said I should try to escape from here, and he'd send a troop to meet me. I told him where he could billet his troop, and we haven't talked since. My guess was he'd turned coat out of sheer funk. I didn't realize what'd actually happened to him. The poor fool."

Hopelessness welled beneath the drug in me. "What can we do except die?" I asked.

"Hadn't you any notions when you cut out?"

"Nothing special. To die like a free man, maybe."

Valland snorted. "Don't be romantic. You haven't got the face for it. The object of the game is to stay alive, and get back our people and our stuff. Mary O'Meara's waitin' on Earth."

That last sentence was the soft one, but something about it yanked me upright in my bed. God of Creation, I thought, can a woman have that much power to give a man?

"Relax," Valland said. "We can't do anything right now."

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"I gather . . . you've been busy, though," I said.

"Sure have. I stopped bein' a prisoner the minute ya-Kela got across to the Pack that my folk were now also downdevil victims. He'd been ready to trust me anyhow, for some while."

Afterward, when I knew more Azkashi, I was told that Valland had been along on a hunt in which a twyhorn charged past a line of spearmen and knocked down the One. Before the animal could gore him, Valland had bulldogged it. Coming from a higher gravity was helpful, of course, but I doubt that many men could have done the same.

"The problem's been to convince 'em we aren't helpless," Valland said. "They still have trouble believin' that. Throughout their past, they've won some skirmishes with the Herd, but lost the wars. I had an ace to play, however. The Herd's crossed the lake, I said. They'll build an outpost around our ship. Then, to support that outpost, they'll call in their loggers and farmers. If you don't wipe 'em out now, I said, you'll lose these huntin' grounds, too." He blew a dragon puff of smoke. "We got the other Packs to agree in principle that everybody should get together and attack this thing while it's small."

"Stone Age savages against energy guns?" I protested.

"Well, not all that bad. I've done soldierin' now and then, here and there, so I can predict a few things. Rorn can't put guns in any other human hands. He'll demonstrate their use to the Herd soldiers. But you know what lousy shots they'll be, with so little practice. Cortez had good modern weapons too, for his time, and men a lot better disciplined than the Aztecs; but when they got riled enough, they threw him out of Mexico." Thoughtfully: "He made a comeback later, with the whole Spanish power behind him. We have to prevent that."

"What do you propose to do?"

"Right now," Valland said, "I'm still tryin' to hammer into the local heads some notion of unified command and action under doctrine. Fightin' looks easy by comparison.

"But . . . Hugh, listen, the Packs may outnumber the Herd detachment, but they'll have to charge across open ground. I don't care how poorly laid an energy barrage is, they can't survive. Not to mention arrows. Those Herd archers are good."

"So who says we'll charge?" Valland countered. "For our main operation, anyhow. I've got a plan. It should take the downdevils by surprise. Everything you've told me fits in with what ya-Kela knows, and it all goes to show they can't read minds. If they could, they wouldn't need to transmit words through those midget sensitives. The downdevils read Rorn's emotional pattern, all right, and shifted it for him. But that was done on a basic, al-

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most glandular level. They couldn't've known what he was thinkin', nor what we think."

"Our men are hostages," I reminded him. "Not to speak of our food tanks and the other equipment we need for survival."

"I haven't forgotten." His tone was mild and implacable. "We'll have to take chances, for the men as well as ourselves. Because what have they really got to lose? If we get in fast—"

A shadow darkened the cave mouth. As he joined us, I recognized ya-Kela. He hailed me with the courtesy that most savages throughout the universe seem to use, before he turned to Valland. I couldn't follow his report, but he sounded worried.

Valland nodded. " 'Scuse me," he said: "Business."

"What?" I asked.

"Oh, one of those silly things that're always comin' up. Some Pack chiefs decided they don't like my ideas. If cut-and-run guerrilla fightin' by little independent gangs was good enough for granddaddy, it's good enough for them, and to hell with this foreign nonsense about unity and assigned missions. Ya-Kela can't talk sense into them. I'll have to. If we let anyone go home, pretty soon everybody will."

"Do you think you can stop them?" I fretted, for I knew something about pride and politics.

"I've been doin' it, since we started this project. Now get some rest. You'll need your strength soon." Valland left with ya-Kela. He had to stoop to get out.

I lay there, cursing my weakness that would not let me go, too. Noises came to me, shouts, yelps, snarls. There was the sound of a scuffle; Valland told me later that he had had to underline a logical point with his fist. But presently I heard notes like bugle and drum. I heard a human voice lifted in song, and I remembered some of those songs, ancient as they were, "Starbuck" and "La Marseillaise" and "The March of the Thousand," forged by a race more warlike than any on this world; then he set his instrument to bagpipe skirls and the hair stood up on my spine. The Packs howled. They didn't comprehend the language, they hardly grasped the idea of an army, but they recognized strong magic and they would follow as long as the magician lived.

We came down to the shore well south of our objective. By then time was short for Valland and me, little remained of our powdered food; and what had gone on with our people these Earth-days of their captivity? Nevertheless we must wait on the weather.

That didn't take long, though, on this planet. Rain was succeeded by fog. The Packs divided themselves. A very small contingent went with Valland, a larger one with me; the bulk of them trailed through the woods, ya-Kela at their head.

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I was in charge of the waterborne operation, ya-Eltokh my lieutenant. He was also my interpreter, being among the few who could understand my pidgin Azkashi; for I had no omnisonor to help. And as far as the crews were concerned, he was the commander; I didn't have Valland's prestige either. But this was the key to our whole strategy. The Packs kept dugouts by the lake. They had never used them for anything but fishing. How could it be expected that they would assault with what amounted to a navy?

We glided through clouds that were chill and damp, red-gray like campfire smoke. Nearly blind, I could only crouch in the bow of my hollow log while six paddles drove me forward. The Azkashi saw better, well enough to maintain direction and formation. But even they were enclosed in a few meters of sight. And so were our enemies.

I am no warrior. I hate bloodletting, and my guts knot at the thought that soon they may be pierced. Yet in that hour of passage I wasn't much afraid. Better to die in combat than starve to death. I dwelt on the people and places I loved. Time went slowly, but at the end it was as if no time had passed at all.

"We are there," ya-Eltokh breathed in my ear. "I see the thing ahead."

"Back water, then," I ordered unnecessarily; for my watch said we were in advance of the chosen moment. The waiting that followed was hard. We couldn't be sure that some boatload of impulsive hunters would not jump the gun and give us away. With a fortress to take, we depended on synchrony as well as on surprise. When the minute came, I screamed my command.

We shot forward. The spaceship appeared before me, vast and wetly shimmering in the mist. Two canoes lay at the ladder we had built to the above-water air lock. Their paddlers shrieked and fled as we emerged.

I grabbed a rung. Ya-Eltokh pushed ahead of me, up to the open entrance. A Herd soldier thrust down with a spear. Blowguns sighed at my back. The giant yelled, toppled, and splashed into the lake. Ya-Eltokh bounded inside. His tomahawk thudded.

My mates boiled after him, forcing the doorway. I came last. Our crew had to be first, for only I could guide our party through the ship. But my knowledge made me too precious to spend in grabbing a toehold.

I got into battle aplenty, though. Three of the Pack were down, ripped by soldiers who had come pounding at the alarm. Ya-Eltokh dodged, slashing with his ax at two huge shapes. One of them spied me and charged. Valland had had something new made for me, a crossbow. I had already cocked it. I pulled trigger and the bolt slammed home. The corridor boomed with his fall.

Then more of our people were

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abroad. They formed a living wall around me. I cocked and fired as fast as I was able. It wasn't much help, but I did down a couple of worker Niao who had joined the fray. Ax, knife, and spear raged around us. Howling echoed from metal.

We needed only hold fast for some minutes, till an overwhelming force of hunters had boarded. There weren't many guards on the ship; no one had looked for this maneuver of ours. When the last of them fell, the workers threw down the tools they had been using for weapons. I tried to stop my people from massacring them, but too much ancient grudge had to be paid off.

Ya-Eltokh came to me, his feet painted with blood. "I see the big boat now," he rasped.

"Don't let it near, but don't let our boats attack it either," I ordered. With fifty or so Azkashi to help, and a single doorway to defend, he shouldn't have a problem. I led a small troop to the lower decks, where we had commenced salvage operations before the Niao arrived.

That job was not any further along. The Ai Chun had no interest in a spaceship as such. Their gangs had been stripping away metal for more prosaic uses.

But Urduga was there, hastily bound when the fight started. I cut him loose and he wept for joy.

"How've you been?" I asked.

"Bad," he told me. "They haven't mistreated us yet, in a physical sense, I mean. We're still being . . . explored, so they'll know exactly what they want to do with us. But I'd got to the point where I begged them to send me out here as a supervisor." He looked around with haunted eyes. "So far I've managed to keep them from damaging anything essential."

"We've got to be quick," I said. "The plan is that we draw most of their strength out on the lake. Then our shore force hits them. But Hugh's boys have to take the compound before the enemy thinks to wreck our survival equipment. What can we improvise here against a warship?"

Urduga threw back his head and bayed like one of the Pack. "I'll handle that!"

I left him in the laboratory while I went back topside to see how the fight was going. The galley stood off, barely visible in the fog, deck crowded with soldiers. Those of our crews that had not boarded with us had prudently withdrawn from the neighborhood. Thus far our scheme had worked. Rorn must feel sure that Valland and I had organized the attack. But he'd figure, we hoped, that we knew better than to attempt storming the compound against energy weapons. Instead, we must expect to use the *Meteor* for a bargaining counter; and he in his turn must expect to besiege us here.

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Valland couldn't long delay his own move. And, if then that shipload of giants should return to meet him—

An arrow whistled past me. I ducked back into the lock chamber. "What next?" ya-Eltokh growled. The hunters around him hefted their weapons and twitched their tails. They could keep the galley at arm's length, but it had them bottled up. Enclosed in these hard walls, they grew nervous.

"What," I said.

"Like beasts in a trap?"

"Wait! Do you follow ya-Valland or not?"

That quieted them a little for the necessary horrible minutes. But I was close to crying myself when Urduga joined us. Several of the Pack, whom I'd detailed, accompanied him with a load of bottles.

He peered into the swirling grayness. "We'll have to lure them closer," he said.

I explained the need to ya-Eltokh. He turned to his folk. "Out!" he cried.

He led them himself, down the ladder into a sleet of arrows. They entered the water and swam toward their scattered boats. A horn blew on the galley. Its oar chunked. It slipped alongside us. Now that the Pack had got so desperate as to attempt a battle on the lake, the warriors could recapture the spaceship and then deal with our flotilla at leisure.

Urduga struck fire to fuses. I helped him pitch out the bottles. Mostly they contained liquid hydrocarbon, but he'd found some thermite as well.

Fire ran across the deck. Soldiers ululated when they burned, sprang overboard and were slain from our dugouts. A few got onto the ladder. Such blowgunners as we had kept dealt with them.

An armored colossus, brave and cool-headed, shouted his command. The oars moved again. The galley started for shore. But flames roared red throughout the hull. Dugout and swimmers kept pace. If any of the Herd reached land, they would not be hard to kill.

Wolf howls resounded from afar. Ya-Kela had seen, and led his charge out of the woods. Energy beams flashed like lightning in the fog. They took their toll. But ya-Kela's mission was simply to distract the defenders—

—While Hugh Valland and a small, picked cadre went unnoticed on their bellies, up to the stockade.

We'd built well. A battering ram could not have got the palisade down before the crew was shot from above. But he expended his own pistol charges. Wood did not burn when those bolts hit. Cellular water turned to steam and the logs exploded. He was through in a minute.

He sped for the food tanks. Soldiers and workers alike tried to bar his way. His gun was exhausted, but he swung an ax, and his hunters were

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with him. They gained their position, formed a circle, and stood fast.

They would soon have died, for the diminished garrison still outnumbered them, and had those other firearms to boot. But they had purchased ya-Kela's opportunity. In one tide, he and his men reached the now ill-defended wall and poured through the gap.

Yes—his *men*.

Combat did not last long after that. At such close quarters the Herd was slaughtered. Never mind the details. What followed was all that mattered. I have to piece it together. But this was when we lost everything we thought we had gained.

Valland broke through the remnants of the fight and led a few Azkashi toward our shack. The door was locked. His fist made the walls tremble. "Open up in there!"

Rorn's voice reached him faintly: "Be careful. I have Bren and Galmer here, and my own gun. I can kill them."

Valland stood for a space. His followers growled and hefted their weapons. Unease was coming upon them like the fog that rolled past their eyes.

"Let's talk," Valland said at length. "I don't want to hurt you, Yo."

"Nor I you. If I let you in, can we hold an honest parley?"

"Sure."

"Wait a minute, then." Standing in red wet murk that was still cloven by the yells and thuds of combat, Valland heard some sounds of the Yonder language. A treble fluting responded.

His Azkashi heard, too. A kind of moan went among them, they shuffled backward and ya-Kela exclaimed shakenly: "That is one of the dwarfs. I know how they talk. Our scouts did not see that any of *them* had landed here." He gripped Valland's arm with bruising force. "Did you know, and not tell us?"

As a matter of fact, the human must have thought, yes. He had not his omnisonor with him, to aid in shaping tones, but he managed to convey scorn. "Do you fear the downdevils even when they are beaten?"

"They are not like the Shkil. They do not die."

"We may find otherwise." Somehow Valland made them stay put until the colloquy inside ended and the door creaked open.

The blind telepath stood there. Blackness gaped behind him. Rorn's order rasped from within: "You come by yourself, Valland." As the gunner trod through, the dwarf closed the door again.

Rorn activated the lights enough for him to see. Bren and Galmer lay on two bunks, tied hand and foot. A pair of soldier Niao flanked a great wooden tub filled with water. They crouched tense, spears poised, lips drawn back from teeth. Rorn stood before the tank. His en-

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ergy pistol was aimed at Valland's midriff. His features were also drawn tight; but—maybe just because he had put on a little weight—serenity remained beneath.

Valland glanced at his comrades. "How're you doin', boys?" he asked softly.

"All right," Galmer said.

Bren spat. "Hugh, don't let this cockroach use us against you. It'd be worth getting shot by him, as long as we know you'll squash him later."

Rorn smiled, without noticeable malice, and reminded: "You'll never build your escape vessel if you lose their skills, Hugh. And there's no other way off this planet. The Yonderfolk left nothing behind except a few items the Ai Chun took apart centuries ago. What I've learned while we were here convinces me the Yonderfolk really don't use radio for communication, nor are they likely to notice a laser flash, nor— Never mind. You've got to have these men."

"For their own sakes, if nothin' else," Valland agreed. He leaned his ax against the table and folded his arms. "I can't believe you'd murder your fellow human bein's, Yo."

"Not willingly. Only if I absolutely must, and then in love and service. But they are hostages. They'll leave with us."

"Now you know I can't allow that. We'd never get 'em back." Valland sought the gaze of the prisoners. "Hate to sound theatrical, but stayin' laconic is hard work. Which'd you rather be, dead or slaves?"

Sweat glistened on their skins, Galmer jerked out, "You needn't ask," and Bren nodded.

"You see," Valland told Rorn, "you can buy your own escape with their lives and freedom, but that's all."

Rorn looked uncertain. A splashing resounded from the tank, and the two great sleek heads broke surface. Through the scant illumination, chalcedony eyes probed at Valland. He gave them stare for stare.

The Ai Chun spoke via their dwarf. In the Earth-days since he renounced his species, Rorn had improved his command of Yonder until he could readily use it; so much does the removal of inward conflict do for the mind, and you may decide for yourself whether it's worth the price. "Do you follow them, Hugh?" he asked. "Not so well, eh? They say—" He stopped. "Do you know just what they are?"

"The skipper told me about them," Valland said shortly.

"He's prejudiced. They are . . . good, wise, no, those words are too nearly meaningless . . . they are as far beyond us as we are beyond the apes."

"I'm not sure how far that is," Valland shrugged. "Go on, what do they want?"

"You've . . . we've caused them a heavy loss. This latest episode goes further to prove that they can't tol-

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erate us running loose, any more than we could tolerate pathogenic bacteria. But they don't strike out, blindly destructive, as man would. They'll take us in. They offer us more than we could ever hope to gain, or know, or feel, by ourselves."

"Like your case?" Valland said. "Sorry, but I am bein' sarcastic. The answer is no. You and they can go in return for our friends. Then, if you all leave us be, we'll do the same for you."

Rorn translated. The Ai Chun were slow to reply, as they were slow to most things. In the end:

"Negative," Rorn said. "They don't fear death. They're reborn, immortal in a way we'll never achieve."

"Have you swallowed that crock yourself?"

"Makes no difference. I'm not afraid either, not of anything any longer. But think. It doesn't matter whether their belief is correct or not. What does matter is that they hold it. By taking these men away from you, whether by death or captivity, they'll ruin you. For the sake of that, they don't much mind cutting short a pair of incarnations."

"They'd better not mind," Valland grinned bleakly, "with their chums listenin' in."

"Don't you understand what that means?" Rorn breathed. "You aren't just confronting two individuals. An entire world! You can't win on your own terms. But let go your pride. It's no more than a monkey screaming from the treetops how important he is. Let go, use your reason, take their guidance, and you'll have your true victory."

"Spare me the sermon, Yo. I got a girl waitin' on Earth. The rest of us have our loves too, whatever they may be, as strong as yours. We'd sooner die than give them up. I've lived a fair spell, and it's been my observation that hate doesn't make for conflicts which can never be settled. People who hate each other can still strike bargains. But conflictin' loves are somethin' else."

Valland stood a while, stroking his beard and sunk in thought. Outside, the battle had ended. In the silence that now filled the hut, one grew aware of breathing, the faint lap of waves in the tank as the Ai Chun stirred, the thump of a spear butt on the floor, the heat and stenches and inward-crowding shadows.

Finally Valland gusted a sigh. He raised his head and spoke, low but resonant. "How about me?"

"What?" Rorn gaped at him.

"I organized this attack, you know. Modest as I am, I doubt if my gang is any military threat without me. If you must keep a hostage, suppose you take me instead of these fellows."

"No, Hugh!" Galmer cried.

"We can't afford heroics," Valland said to him. "You can spare my technical knowledge, at least. And maybe I can talk these people

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into makin' peace. Think you could?"

Bren thrust his face up, so that light could touch the lines and hollows lately carved therein. "*You* don't know what they're like," he said.

Valland ignored him. "Well?" he asked Rorn.

"I . . . I don't know." A conference followed. "They must consider this."

"All right," Valland said. "I'll leave you alone to talk the proposition over."

He started for the door. "Halt!" Rorn yelled. A soldier sprang in pursuit.

Valland obeyed, turned about and said evenly, "I've got to tell them outside in any event, and prove this is my personal idea. Otherwise you could get attacked soon's you cross the threshold. I'll come back in two, three hours and see what you've decided. Agreed?"

They stood dumb and let him depart.

Victory was dead meat in ya-Kela's mouth. Word had run through the Packs: There are actual downdevils here, now when God is withdrawn from heaven. Ya-Valland himself could not prevail against them, he left the house they have taken without those he went in to save, and however strange his kind may be to us, we can see, we can even smell the horror that clutches him and his mates. Day glares upon us. Best we slink off under the forest roof.

Many had already done so. And more of them followed, picking up their gear and vanishing into the mists. They spoke little, but that little made a mumbling across the land like the first wind-sough before a storm.

He himself was fain to leave. But because ya-Valland asked it, he used his late shreds of authority to hold some in place. A hundred or less, they squatted well away from the compound in a ring about such prisoners as had been taken. They dared not tend the dead of either side. Corpses littered the tussocky ground, sprawled beneath the walls; and the carrion wings wheeled impatient overhead.

Ya-Valland, ya-Argens, and ya-Urduga stood disputing in their own tongue, which no longer seemed likely to be God's. Ya-Kela waited, slumped down on heels and tail, feeling his age and his weariness. He had been given to understand that ya-Valland would go away with the downdevils as the price of liberty for his other two mates. But without him, what were the rest? They seemed to feel likewise, for the talk waxed fierce until ya-Valland cut it off and would listen to no more.

Then he addressed the One. He had fetched his musicmaker. The Azkashi sounds limped forth: "Be not disheartened, my friend. We did not succeed as well as we hoped, but the hunt is far from ended."

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"We have run ourselves breathless," ya-Kela said, "and the quarry swings about to gore us. Who may prevail against the downdevils save God, Who has forsaken the world?"

"I do not plan to stay with the enemy for long," ya-Valland said.

"They have taken captives often and often. None ever returned. Old stories tell of a few whom the Packs recaptured in skirmishes. They were so changed that naught could be done but kill them as gently as might be."

"I shall not suffer such a fate if you will stand by me."

"I owed you a blood debt," ya-Kela said, "but it has been paid with folk who were dear to me."

"You have not yet paid your debt to your people," ya-Valland said sharply.

Ya-Kela started, glanced up at him, and rose to bring their eyes more nearly level. "What do you mean by this newest riddle?"

"Something that you—all the Azkashi—must come to understand. Without it, you are doomed. With it, you have hope; more than hope, for when free folk know what freedom costs and how to meet that cost, they are hard indeed to overcome."

A faint tingle ran along ya-Kela's skin. "Have you a new magic for us?"

"Better than a magic. An idea." Ya-Valland sought words. "Listen to a story:

"In the sky-place whence I come were two countries. One was called Europe, where dwelt a people like myself. The other was called America, and a different folk possessed it whom we named Indians. The people of Europe crossed the waters between and started to take land in America. Most of the Indians were hunters. At best, they could not match the powers of the Europeans, who were not only farmkeepers like the Niao but also had new weapons. Thus, in time, the Europeans took all America away from the Indians."

Ya-Kela stepped back. His ax lifted. "Are you telling me that you are akin to the Herd?" he shouted.

Ya-Valland's mates clapped hands to those fiery weapons they had repossessed. He waved them back, spread his own empty hands, and said:

"In some ways, yes. In other ways, no. For example, the Indians held a faith in beings not unlike the downdevils, whereas the Europeans worshiped one God. I am trying to teach you a lesson. Are you brave enough to hear me out?"

Ya-Kela could say nothing but, "Yes." Lowering his ax was harder work than his charge into arrows and flame.

"For you see," ya-Valland said, "the Indians need not have lost. In the early days, at least, they outnumbered the European settlers. They were masters of the wilderness. They were not slow to get for themselves weapons like those of the invaders. In truth, at times they had

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better ones, and inflicted numerous bloody defeats on their foe.

"Why, then, did they lose?

"The reasons were several. But a great one was this. They were satisfied to win a battle. To them, any piece of land was as good as any other, provided both had game. They fought for honor and glory alone. If once a territory had been occupied, and farms had covered it, they did no more than raid its outskirts. And seldom did they stand and die like Europeans, to hold a place that was holy because their fathers were buried there.

"Furthermore, ya-Kela, they did not fight as one. If a Pack of them was overwhelmed, that was of small concern to other Packs elsewhere. Some even helped the Europeans against their own kinfolk. None planned generations ahead, sacrificing lives and goods that their great-grandchildren might be free. All these things the Europeans did. And thus the Europeans conquered.

"Can you see what may be learned from this?"

Ya-Kela bowed his head. "The lesson is hard."

"I do not expect the Azkashi to learn it soon," ya-Valland said. "If you yourself do so in your lifetime, and teach a few others, that may suffice." He was still for a moment. "And perhaps then I will have paid a part of the blood debt my ancestors left me."

Ya-Kela cried out, "What has this to do with your going away?"

"Only that, whatever becomes of me, you must think ahead and hold fast to common purpose. You must not be content with a single victory like ours today, nor lose your will because of a later defeat such as we have also met. I am the one who hazards the gelding of his souls, and I have not yet despaired. Be you likewise. God has not left you."

"Look in the sky and tell me so again," ya-Kela said.

"Why, I shall. Come here."

Ya-Valland led him into the compound, though he cringed from the silent, locked house. A lean-to behind held the enigmatic tools he had observed on his earlier visit. "We are lucky that we did not wish to be crowded by those in our living quarters," ya-Valland said. He took one, a box and tube mounted on three legs, and carried it back to free ground.

"This," he said, "we call a *photo-screen 'scope*. Suppose you have a very hot fire. Cast a small ember into the coals, and you will not be able to see it, for the coals flood it with their brilliance. Yet if the place were otherwise dark, the ember would seem bright enough. True?"

"True," ya-Kela said. Wonder began to take hold of him. The mere sight of magics like this gave spirit.

"The 'scope has the power to pluck faint lights out of greater," ya-Valland said. He consulted with his mates and a set of leaves covered with curious markings, and pointed the tube heavenward. "I will show

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you the sky—yonder part—as if night had fallen. See."

He touched a projection. A smooth flat plate on the box grew dark. One point of light burned near the middle.

"Is that not where the planet Oroksh should be?" ya-Valland asked.

Ya-Kela assented mutely. As the One, he had long been intimate with the heavens.

"Well, find me another."

Ya-Kela gestured at unseen Ilyakan—if it really was there, his thought shuddered.

Ya-Valland aimed in the same direction. "Hm-m-m, not quite right. Here." As he moved the tube, another steady spark drifted across the plate. "Do you see?"

"I see," ya-Kela said humbly.

"Now let us try low in the east."

Ya-Kela gasped, sprang back, fell to all fours and howled the first lines of the Welcome. God shone upon him. Ya-Valland twisted a knob, and God blazed brighter than mortal eyes had ever before seen Him.

"He is still aloft," ya-Valland said. "This you could well have known for yourselves, save that you would not agree that the sun could hide Him. Think, though. It does not mean He is less than the sun. A bonfire a great distance off may be veiled by a torch close to hand. Fear not the downdevils; God is with you."

Ya-Kela crouched on the wet earth and sobbed.

Ya-Valland raised him up and said, "I ask only courage of you, which you have already shown. We have little time before I must go back into the house. Let us make plans. Later you shall bring those hes whom you think will take this sight as you did. Then we shall be ready for whatever may befall."

He looked at his comrades. His teeth showed, in that gesture which seemed to betoken mirth among his breed, and he said in their language: *"First time this gadget was used for religious purposes, I'll bet. Wonder if the manufacturer will be interested in buyin' an endorsement?"*

"Hugh," said ya-Argens, *"I don't know whether to call you a hero or a devil."*

Ya-Valland lifted his shoulders and let them fall. *"Neither,"* he said. *"Just a fanatic, for reasons you know."*

The best bargain we could make was harder than awaited. We must release every Niao prisoner. And I, too, must become a hostage.

In exchange we got Bren and Galmer back, and kept the guns we had recaptured. Rorn was obviously satisfied. ("He's the real negotiator," Valland remarked. "The Ai Chun can't know beans about war or politics. So they kid themselves that they made him for the purpose.") We were the leaders. Without us, the Azkashi alliance must soon fall apart, after which the last three men could be picked off at leisure. Naturally, Rorn maintained the fiction that

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once in Prasiyo we would negotiate; and naturally we pretended to be taken in by it, less from logic than from wishful thinking.

I'd certainly enjoy some wishful thinking, I confessed.

Disarmed, burdened with our survival gear and a fresh food supply, we walked from the hut in the middle of a soldier cordon who held knives to our ribs. The weather had cleared for a while, though fresh thunderheads were piling up in the north, blue-black masses where lightning winked. The Ai Chun went before us. On land they were gross, clumsy, and still somehow terrible. A forlorn party stood to watch us off: Urduga, Bren, Galmer, an Azkashi handful. They scarcely stirred. Our compound seemed very small in that vast dark landscape.

Several canoes had been drawn ashore, along with the Pack dugouts. Rorn gave them a hard look. "Are these all you have?" he demanded.

"Yes," I said. "No doubt a number are drifting free, and probably others went home in panic."

"We'll be pretty crowded." Rorn spoke with his masters. Voiceless messages flew across the water. "A detachment from Prasiyo will meet us, and we can transfer some of our party. But that can't be for many hours."

"Or we might come on one or two abandoned boats," Valland suggested. "I hope so. Don't fancy sittin' cheek by jowl, myself, when the jowls are so hairy." He took a long breath. "Ah-h-h! Even this Turkish bath air is good, after all that time in the cabin arguin' with you."

"You needn't have dragged matters out as you did," Rorn told him.

"Can't blame a fellow for tryin', can you?"

The canoes were long, with more than a meter of freeboard and great stability even after we filled them from stem to stern. To be sure, overloading much reduced their speed. The Ai Chun, who took ample room for themselves, could easily have run away from their escort. But we stayed together. Coxswains chanted low beneath the breeze, waves, distant muttering thunder; paddles bit; we started forth across the lake. My last clear glimpse of land showed me the men we had liberated, wading out among the reeds to stare and stare after us.

We three humans were in the same canoe. I hadn't expected that. But Rorn wanted to talk. We squatted as best we could near the bow, so that the other passengers only squeezed us from one side. They were mute, hardly moving save to nurse a wound or change a shift at the paddles. Their gods had come through for them, but they were still exhausted and shaken by what had gone before. As we passed the wreck of the *Meteor,* many signed themselves.

"Why didn't you bring your omnisonor, Hugh?" Rorn asked.

"I'm not exactly in a mood to sing," Valland grunted.

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"But it'd be useful for communication."

"We got Yonder."

"Nevertheless—"

"Damnation!" Valland exploded. "That instrument made my song to Mary O'Meara. You think I'll use it for talkin' with your filthy owners?"

"Spare the emotion," Rorn said. "The Ai Chun have as much right to preserve their culture as anyone else does. You've done them harm enough."

Well, I thought, I guess I am sorry that old Gianyi got killed. He was a decent sort, in his fashion.

"We didn't set out to hurt anybody," Valland said. "If they'd left us alone, none of this would've happened."

"Oh? What about your effect on the savages? You planned to organize them, give them new techniques, whole new concepts. And they are the enemy. They'd have become a good deal more dangerous to the Niao. Furthermore, whatever your personal intentions, could you guarantee to keep men off this world indefinitely?"

"No," Valland said, "and I wouldn't care to anyhow. Your right of cultural self-preservation is a lot of belly rumble. Anybody's got a right to defend himself against attack, sure—which is what we were doin'. But his right to wall off new ideas comes from nothin' but his ability to do so. If he can make the policy stick, fine. That proves he's got somethin' which works better than the so-called progressive notions. But if he can't, tough luck for him."

"In other words," Rorn jabbed, "might makes right."

"I didn't say that. Of course there are good or bad ways to compete. And if somebody doesn't want to play the game, he should be free to opt out. Only then he can't expect to be subsidized by those who do want to keep on playin'." Valland began to remove his boots and tunic. "Judas, it's hot! I could use some of that thundershower over there."

"The Ai Chun were ancient when we hadn't yet become mammals," Rorn said. "Do you dare call yourself wiser than them?"

"Garden of Eden theory of history," Valland murmured.

"What?"

"Used to hear it often on Earth, a long time ago when things were still fermentin' there. People would look around at everything that was goin' wrong and blame it on the fact that men had left the good old tried-and-true ways of their grandfathers. I always thought, though—if those ways had been so fine, why were they discarded in the first place?"

"You mean," I ventured, "if the downdevils really are superior, they should have nothing to fear from us?"

"Right," Valland said. "Besides, speakin' of self-determination and so forth, how much has the Herd got?"

A trace of irritation crossed

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Rorn's features. Remembering how he had once snapped at us all, I felt a hideous kind of pity. This was like seeing a ghost.

"You may rationalize as much as you will," he said. "The fact is, the Ai Chun are proving their superiority at this moment."

"They've grabbed a temporary tactical advantage," Valland said. "We'll see how things work out in the long run. Just what do you propose to do?"

"Prevent the establishment of a base on this planet," Rorn said candidly. "Not by force, I think. There are better ways. We'll convince any future visitors that the planet is useless to them. I have some ideas along those lines."

"They'll need you, for certain, the downdevils," I agreed. "But how do they intend to keep you alive? You took along a supply of portable rations. But what when those give out?"

"The food tanks are intact, back in camp," Rorn said. "Your friends won't refuse to feed you, even if it means feeding me too."

Until such time as you kill them and seize the units for yourself, I thought sickly.

"Why don't you peel down also, before you melt, skipper?" Valland asked.

The reminder was a shock. Heat weighed me down like thick wet wool. A strengthening breeze from the north gave small relief. In fact, if it blew us off our straight-line course, or those rising clouds covered the sun by which we were presumably navigating—I fumbled at my garments. My muscles felt stiff. Won't do to get cramped, I thought amidst a beating in chest and temples. No room here for a real stretch, but a few isometrics ought to help.

"Makes me remember the High Sierra," Valland mused.

"The what?" I asked. Anything was welcome that would make me forget for a while that I was here, and would quite likely soon be dead. But I don't know if he was really talking to me. He looked across the waters, into the murk of day and the livid storm, and almost he sang.

"Mountain section on Earth. Parts were kept as wilderness. Mary and I backpacked in there once. That was just before the antithanatic came along. But, of course, everybody knew it'd soon be in production. Nobody who was alive would have to grow old. Those were strange weeks. Thinkin' back, I have trouble makin' them seem real. The world had grown so quiet. Wasn't so much that people got extra cautious, knowin' what they stood to lose. It was an air. For a bit, while the human race waited, it felt kind of like wakin' after a fever had broken. All mankind, since first it began to think, had gone around with that sickness, the fear of old age. You'd look at a little girl, like yours, say, and you'd think of your grandmother, and know that in less'n a

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century this packet of happiness would be blind and in pain and hungry for death. Then suddenly we didn't have to take that any more. People needed a while to get used to the idea.

"Mary and I, though, we were young. We couldn't sit still. We had to do somethin' to, to show ourselves we were alive enough to rate immortality. What'd be the use of it, if we only spent our centuries bein' careful? Eventually most people felt likewise, of course, and went to the stars. But we did from the first. Or, rather, Mary did—that kind of girl—and made me see it, too.

"So we flitted to the Sierra, and loaded up, and started hikin'. Day after day; sun overhead, wind through the pines, till we got above timberline and looked down those tremendous blue slopes, crossed a pass and stopped for a snowball fight; and one night we camped by a lake where the moon and Jupiter rose together and threw two perfect glades, and Mary's the only sight I've seen that was more beautiful.

"Though, you know, we weren't simply havin' fun. To her, anyhow, and to me on her account, it was a sort of pilgrimage. Others had loved this place. But death got them and they'd never come back here. We wanted to do this for them. We swore to each other we'd always remember our dead." A small sad smile crossed Valland's lips. "Oh, Lord, but we were young!"

Rorn half opened his mouth. I bristled. How much more preaching could a man be expected to take? Precisely in time, a voice hailed from the leading canoe.

"Ya-o-o-o-a aie! Aie!"

The Niao shifted their packed bodies down the length of our boat and peered across the heads of their fellows. The soldiers among them laid hands on weapons. The paddlers stopped work. I heard the wind, still stiffening, pipe in my ears; little whitecaps slapped our hull and rocked it. Sliding my goggles off my brow and activating them, I also stared.

The gloom was made lighter for me and I saw another Herd canoe a few kilometers to the west. It wallowed without visible sign of life. But the dwarf shrilled on the vessel of the Ai Chun and his word was bayed thence by the giants.

"What're they sayin'?" Valland asked.

"People of ours in that craft," Rorn said. "Frightened . . . in pain, I believe . . . I haven't many words of Niao yet. The Ai Chun sense their minds."

And could not actually read the thoughts, leaped through my own brain. However, by now they must have studied humans enough that they can identify our basic emotional patterns, too. If they should tune in on me, what would they observe?

I struggled to suppress the fear-hope-fury that churned in me. I

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might as well have told the approaching storm to go home.

"Survivors of the battle, evidently," Valland said. "Must've been wounded, escaped, haven't the strength to maintain headway." At a shouted command, our group veered and started moving anew. "Well, an extra boat should relieve the jam somewhat for us."

Could the Ai Chun tell Herd from Pack purely by mentalistics? I believed not. There was no real species difference. Ai Chun telepathy must be short-range and imprecise; otherwise they wouldn't have had to operate through the dwarfs. When you develop a tool, you don't evolve the tool's capability in yourself. Nor does it have yours. The dwarfs were specialized; they didn't keep watch or give warning unless told to. For millions upon unchanging millions of years, no one on this world had needed any equivalent of radar—nor, in the downdevils' omnipotence, the cruel tricks of war.

Such reasoning had been the basis of Valland's strategy, which had worked until he encountered Rorn. We must hope it remained sound.

Certainly the Ai Chun would notice rage and terror aboard that canoe. They should dismiss it as a natural aftermath of battle. Valland's and my flare of emotion, though—why should *we* get excited?

"Shut your hatch, you dog!" I yelled at Rorn.

"What in the universe?" He blinked at me.

"Talking about 'our people.' They aren't ours. Nor yours. You sold yours out!"

I made an awkward lunge at him. He fended me off. A soldier behind him prodded me back with his spear. Valland took my arm. "Easy, Skipper," he said. To Rorn: "Not that I don't agree!" He added some obscenities.

"Be quiet," Rorn said. He smoothed his lank, wind-tossed hair. "I'll talk to you after you're fit to think."

A question was flung at him from his masters. He replied in Yonder. I could follow the exchange, more or less. "Nothing serious. The hostages got unreasonable."

Valland and I swapped a glance. We must not let ourselves feel relief. That might also be noticed.

"How do you expect us to do anything but hate your guts?" he growled.

"I said be quiet," Rorn answered. "You'll be punished if you aren't."

We nurtured revengefulness like a cherished flower. The canoes crawled forward. Presently a Niao stood up in the distant one—how distant!—and waved. He was unmistakable, a soldier type, and hideously hurt. I didn't like to think of the means by which his cooperation had been obtained. Not my idea or Hugh's, I told myself, wishing that could justify me. A flourish of ya-Kela's, I suppose. What do you expect, after the way his people have suffered?

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If time had seemed unbearably long before, it now became infinite. The gap between vessels narrowed as if we were on a hyperbola seeking its asymptote. I must have been half crazy when Valland's roar pierced the clamor in me:

"Look out!"

An order bawled through the wind at the same instant. Paddles stopped. Someone had observed something suspicious.

"Let's go!"

I sprang to my feet. We were not so close that I could look into the drifting boat. I knew that the several bodies huddled in the hull should not look different from ordinary Niao. But perhaps— The wounded soldier had collapsed.

Rorn snatched at me. My injured arm batted his hands aside, my good fist struck his face. The impact rammed back into my bones. A spear thrust at Valland. He sidestepped and dove overboard. I followed.

The water was warm and murky-red. I held my breath and pumped arms and legs until it was no longer possible. When my head must go up into air, Rorn's craft was still nearly on top of me.

Arrows smote the waves. I went below again and swam blind.

Now the Azkashi in the canoe revealed themselves, seized paddles and drove frantically to meet us. This had been Valland's idea: precarious indeed, but any chance was worth taking to escape Rorn's fate.

While the enemy was kept in the hut, bargaining, most of the captured Niao boats were taken off and hidden. A few were left, a number not so small as to be unlikely but small enough that they would be overburdened and slow. One went ahead, over the horizon, lightly manned with ya-Kela for captain.

Our men ashore took a compass bearing on the Ai Chun course. Hastily instructed, ya-Kela likewise had such an instrument, and a radio. Bren, Galmer, and Urduga could get a fix on him and tell him where to go lie in wait. And . . . his folk took along a couple of torchguns.

Their bolts flashed against a curtain of lightning as I re-emerged. Water puffed in steam; those were inexperienced hands on the triggers. Nonetheless, the Ai Chun group backed off.

Yet the enemy had not quit. Four huge forms sprang out and started swimming. Adapted to a watery planet, those soldiers could overhaul us well before ya-Kela arrived. They could drag us back; at the least, kill us. My strength was already going. I am not much of a swimmer.

Valland was, by human standards. But when he saw the shapes churning after, he came about. His powerful crawl brought him to me in a couple of minutes. "Tread water," he panted. "Conserve your energy. You'll need it."

"We're done," I strangled.

"Maybe. Maybe not. Better this way, anyhow."

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The nearest soldier darted ahead. Valland got between me and him. They clinched and went under.

A hand closed on me. I looked into the open muzzle, tried weakly to break loose, and was submerged myself. It roared in my head. I thought confusedly: breathe water, you fool; drown and die free. But reflex was too strong. I gasped, spluttered, and whirled toward night.

My face was back in the air. I was being towed. Valland came alongside. He had broken his opponent's neck, down in the depths. He used his thumbnail, twice. The soldier ululated and let me go.

Valland must support me. The remaining pair closed in, through the stained waves. He used his legs to move away from them. They swam around to his head. I saw a dagger lifted.

Then the water was full of bodies and weapons.

Ya-Kela's lads were also good swimmers. Half a dozen of them had plunged the moment they saw our plight. Outpacing any canoe in their sprint, they got to us. Their comrades were not so far behind; and while the gunners dared not shoot near us, they could prevent any reinforcements from coming.

I did not see the fight. Darkness took me once more.

Afterward I lay in the canoe, vomited, coughed, and wept. It wasn't merely reaction. I was altogether sickened. Galaxy God—any God—must we kill through all time, until time ends when the disgusted universe collapses inward on us?

Worse followed. I am glad I was only hazily aware. With yells of joy, the Azkashi gave chase to the Ai Chun. We were soon so close that a marksman like Valland could pick them off. One reached the water and went below, but he waited until the creature rose to breathe and shot him.

The storm rolled upon us. Clouds drove black across the sun, lightning blazed, thunder crashed, the first rain whipped my bare skin. I looked across the gunwale to Yo Rorn's boat, which we were now pursuing to reclaim our gear. My goggles still worked. I saw him stand up, screaming, such agony in him that it was almost good when a soldier's ax broke open his skull.

Valland hunkered beside me. Water ran over his cheeks, into his beard, like tears. "I never intended that," he said dully. "They must've gone insane, seein' me kill their gods. They had to strike back, and he was the handiest." He watched the boats scatter and flee. The one we were after was abandoned by those left in it. "Thanks for that. No more slaughter needed . . . You were one of us too, always, Yo."

"But why did you kill the Ai Chun?" I blubbered. "We were safe by then. Why?"

"We're not safe," he answered. "Won't be for a mighty long time. I reckoned it'd make a good lesson for everybody concerned, to see they

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can be struck down like anyone else. We'll need everything we can get workin' for us."

He shook himself. "No use in regrets," he said. "We've got to be ruthless, or surrender right now. I suppose there are limits to what we can decently do, but I don't think we've reached 'em yet. Come, skipper, you'll feel more cheery after a good long sleep. Let's get on home."

Day stood at afternoon. We had rested, repaired damage, started to organize ourselves afresh, and slept some more. Nonetheless, when we stepped out of our compound and saw the lake glow red in that purple twilight, we had a sunset feeling. A great hush lay on the land. Further down the shore twinkled the fires of ya-Kela's people. Most Pack members had gone home after a skyhooting victory celebration for which many returned from the woods; but he stayed with some. We were to join them and lay plans.

For a while, just beyond the gate, we paused. Valland, Bren, Galmer, Urduga, and me—we seemed terribly few.

Galmer voiced what we thought. "Do you really believe we have a chance?"

"Why, sure," Valland said. His gaiety was strange to hear in so big and dark a place. "We've got our camp back. Nothin' was ruined that we can't get along without. We have allies. Son, if we don't get home again, we won't deserve to!"

"But the enemy, Hugh. The Ai Chun. They won't take this like sportsmen. They'll come against us. We can't stand off a planet."

"We'll have our problems, all right," Valland admitted. "But think. We've shown the Packs you can beat the downdevils. So they'll go with us through a supernova, if only we handle them right, and I reckon I know how." His gaze went across the broad waters. "Distance makes a good defense. Any attackers' line of communications will get stretched thin. Woodsrangers like ours can cut it in two. Though I don't aim to sit and wait. I'm takin' the offensive soon's may be. We'll burn Prasiyo, lay the countryside waste everywhere around, chase the Herd clear to the sea. The downdevils aren't used to actin' fast, I gather. So they'll need some time to recover from that shock and mount a counterattack. By then we'll be ready."

"Still," I said, "a war— When can we do our work?"

"Not our war," Valland said. "Mainly the Packs are concerned. We'll give them leadership, new kinds of weapons, sound tactics, a concept of strategy. I think that'll suffice. Remember, there can't be an awful lot of Herd soldiers. The downdevils never needed many, and won't have time to breed a horde—which they couldn't supply anyhow. No, for the most part we should be free to work, we and the ones we're goin' to train as helpers."

After a moment, reflectively, he

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added: "Won't be a war of extermination anyhow. Our side'll be content to hold this territory, maybe get back some of what was stolen before; but the Packs aren't about to try conquerin' the world. If the downdevils aren't hopelessly stupid, they'll make terms, once we've rubbed their noses a bit. Then we five can really buckle down to business."

Bren sighed. The weight of his captivity was still heavy on him. "That's assuming we're not killed in some fracas," he said. "More, it's assuming we can stay with our purpose. I wonder if we won't get so tired at last that we'll simply quit."

Valland squared his shoulders. The light turned his shock head to copper. Huge against the sky, he said, "No, we won't. We'll keep ourselves reminded of what this is all about—what we're goin' back to."

He started toward the campfires, and striding, he keyed the omnisonor he bore to help him talk with the Pack, and his song arose.

"So softly you hear it now,
Mary O'Meara, but soon it
comes joyful and clear,
And soon in the shadow and dew
of your hilltop a star-guided
footfall rings near.
My only beloved, I'm here."

We followed him. And we built our spaceboat and won the help of the Yonderfolk. The job took four decades.

(Thus far the account published by Guild Captain Felip Argens in his autobiography. An additional tape was found among his effects by the redactor of the posthumous edition.)

Earth is a quiet world.

Oh, yes, wind soughs in the great forests that have come back, now that so few people live there; birds sing, cataracts brawl, the oceans rush on the moon's trail around the globe. You can find ample enjoyment in the starport towns, and the educational centers are bright with youth from every part of the galaxy. Nor is this a museum planet by any means. The arts flourish. Science and scholarship are live enterprises.

But there is too much of the past. One does not build new things there, one preserves the old. That isn't bad. We need traditions. From a strictly practical standpoint, it's good to know you can leave your Earthside property in charge of some robots, return in five hundred years, and find not only it but its surroundings unchanged. Nevertheless, when the adventurers come from the stars on a visit, they walk quietly.

Hugh Valland and I parted in Niyork. Bren, Galmer, and Urduga had gone their separate ways. I had to report, however, and he had his girl, so we traveled together on the *Luna Queen*. Though he'd avoided discussing his plans in detail, I assumed he'd be met when the ferry set us down.

"No," he said, "that's not her way. How about one hell of a good so-

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long dinner tonight? I know a restaurant where the *escargots* consider themselves privileged to be cooked."

He was right. We put away a lot of wine, too. Over brandy and cigars, in a fine comradely warmth, I asked if he meant to take as lengthy a vacation as I did.

"Mm—probably not," he said. "We were stuck on that single planet for such a confounded chunk of time. I've got a universeful of places to go see again. And then new places, where nobody's been yet."

"D'you mean to sign on for exploration?" I raised my eyebrows. "I hoped you'd ship with me."

His massive face crinkled in a smile. "Skipper," he said, "you're a fine chap, but shouldn't we split up for a century or two?"

"Maybe." I was disappointed. True, we'd lived in each other's pockets long enough to drive anyone who wasn't immortal, who couldn't set the years in perspective, to murder. But we'd fought and worked together, and laughed and sung and hoped: and he was the one that kept us doing so. Having a war on our hands was a help—broke the monotony, Valland used to say—but we'd not have won it without his leadership. I didn't want to lose touch.

"You'll be around for a while, anyway, won't you?" I asked.

"Sure," he said. "What'd you think was drivin' me?"

"Mary O'Meara," I nodded. "What a girl she must be. When do I get an introduction?"

"Well, now . . ." For the first time I saw him evasive. "Uh, that won't . . . won't be so easy. I mean, I'd like to, but—well, she's not keen on guests. Sorry. How about another cognac?"

I didn't press him. We had learned, out beyond the galaxy, not to intrude on a man's final privacies. I speculated, of course. Every immortal develops at least one quirk. His was that fantastic monogamy which had saved us. What was hers? Then Valland's grin broke loose again and he related a couple of jokes he'd heard, bumming around in the rim-planet town where we waited for passage to Earth. We said good night in a hilarious mood.

After that, for several days, I was busy at the universarium. The scientists wanted to know everything about the planet of our shipwreck. They'd be sending a mission there, to operate out of the commercial base our company would establish. Before the unique Ai Chun culture died—before that race adapted to reality and became just another race —they meant to study it.

When I finished, I must return to Niyork on business. The Guild had suddenly decided our employers owed us a bonus for our troubles. A rather disgruntled chief accountant told me the sum, which explained his disgruntlement, and put me through various formalities.

"Payments are required to be made directly to the men," he said. With so many people on so many

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planets, the Guild no longer trusts the mails. "I've arranged about the others, but when I called Master Valland, he wasn't at the address he had given. It was a hotel here in town, and he'd moved out with no forwarding code."

"Gone to see his girl, of course," I said. "Hm-m-m. We plan to get together once more, but not for some while."

"Can't you find him before then? Frankly, I'm tired of having your association ride me about this matter."

"And Hugh'd no doubt find good ways to spend the money. Won't be so useful to him on the eve of shipping out." I pondered. From time to time he had said things about Mary O'Meara, though now that I added them together they came to surprisingly little. "Well, I'm at loose ends for the moment. I'll see if I can track him down."

That was for my own sake as well as his. To the company I wasn't a hero, I was a captain who had lost his ship. I wanted to get back into favor, or they'd put me on some dreary shuttle run for the next fifty years.

I walked into the street. Little traffic moved, an occasional groundcar, a few pedestrians. The tall towers that walled me in were mostly empty, ivy and lichen growing on their facades. Though the sun was glorious, the sun of Manhome, light seemed only to drown in that stillness.

Let's marshal the facts, I told myself. She lives on, what's the name, yes, the coast of Maine. A historic but microscopic residential community. He never did say which one, but can't be many these days that fit. I'll check with data service, then run up and inquire. Do me good to get out in the countryside anyway.

As things developed, the search robot gave me just one possibility. I rented a flitter and headed north. The woods have swallowed this part of the continent, I flew above green kilometer after kilometer. Dusk fell before I reached my goal.

That village was built when men first fared across the ocean which rolled at its feet. For a while it was a town, alive with lumberjacks and whalers. Then men moved west, and afterward they moved to the stars, and now a bare two hundred dwelt here: those curious, clannish folk who—even more than on places like Landomar—are not interested in worlds out yonder, who use their immortality to sink deeper roots into Earth.

I parked on an otherwise deserted carfield and walked downhill into town. Behind me lifted a birch forest; white trunks gleamed in twilight, and the air was fragrant with their leaves. Before me lay the few houses, peak-roofed, shingle-walled, their windows shining yellow. And beyond them reached the sea, and the first stars of evening.

A passerby directed me to the civil monitor's house. His name,

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Tom Saltonstall, suggested how old he must be. I found him seated on the porch in a rocking chair, smoking a pipe, while his one wife prepared dinner. He greeted me with polite reserve. There was something about him— After a minute I recognized it. He looked as youthful as I did; but he had the manner of beings I have met, who cannot be immortalized and have grown gray.

"You want Hugh Valland?" he said. "Yes, sure, we know him." He squinted at me through the dimness before adding, with each word chosen beforehand: "A very decent fellow."

"I ought to realize that!" I exclaimed. "I was his captain this last trip. Hasn't he told you what happened?"

"Yes. A little." Saltonstall looked relieved. "Then you understand about—Sure. I'm sorry I didn't identify your name, Captain Argens. I'm overdue for mnemonic treatment. He's spoken fine of you, sir. An honor to meet you." He made the archaic handclasp with me. "Would you pleasure us by staying to eat?"

"Well, thanks, but I ought to find Hugh. Where is he?"

"He owns a house, next street down, third from the left corner. You won't find him there, though. He'll not be back till late, on a night like this."

Ah-ha! I grinned to myself; for the full moon was casting her foreglow into the eastern sky.

I wish I had stayed, and talked with the monitor and his wife. But I only expected the gossip of the Earthbound, which was tedious to me. Pleading weariness, I returned to my flitter. It had bunk, bath, and food facilities. I'd call on Valland tomorrow.

But after dinner I got restless. The multisense programs that I tuned in were not for a spaceman. The moon was up, throwing a broken bridge across the waters and turning the birches to silver. Crickets chirred, almost the only sound beneath those few stars that weren't hidden by moon-haze. This was Manhome. No matter how far we range, the salt and the rhythm of her tides will always be in our blood. I decided to go for a walk.

A graveled road wound farther uphill, and scrunched softly under my feet. As I neared the forest, the live green smell strengthened. Dew glittered on long grass. Beyond the village, now dark, the sea murmured.

And then another tone lifted. For a moment, blindingly, I was back in a sinister red-lit crepuscule where nothing but those chords and that voice gave me the will to fight on. "Hugh!" I cried, and broke into a run.

He didn't hear me. I rounded a copse and saw where I was bound, just as he finished. The last stanza he had never sung to us.

"Sleep well once again if you woke in your darkness, sleep knowin' you are my delight

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As long as the stars wheel the years down the heavens, as long as the lilies bloom white. My darlin', I kiss you goodnight."

I huddled into the thicket and cursed myself. He walked past me, down to his house, as proudly as on that day when our new-built boat first went skyward.

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After a while I continued my walk. Ahead of me stood a small building with a steeple, white under the moon. White, too, were the flowerbeds and the stones among them. I searched till I found the one I was after.

It must often have been renewed, in the course of eroding centuries. But the inscription was unchanged, even to letter style and dating. Not that there was much. Only

MARY O'MEARA
2018 - 2037

I believe I managed to confront him the next day as if nothing had happened. ■

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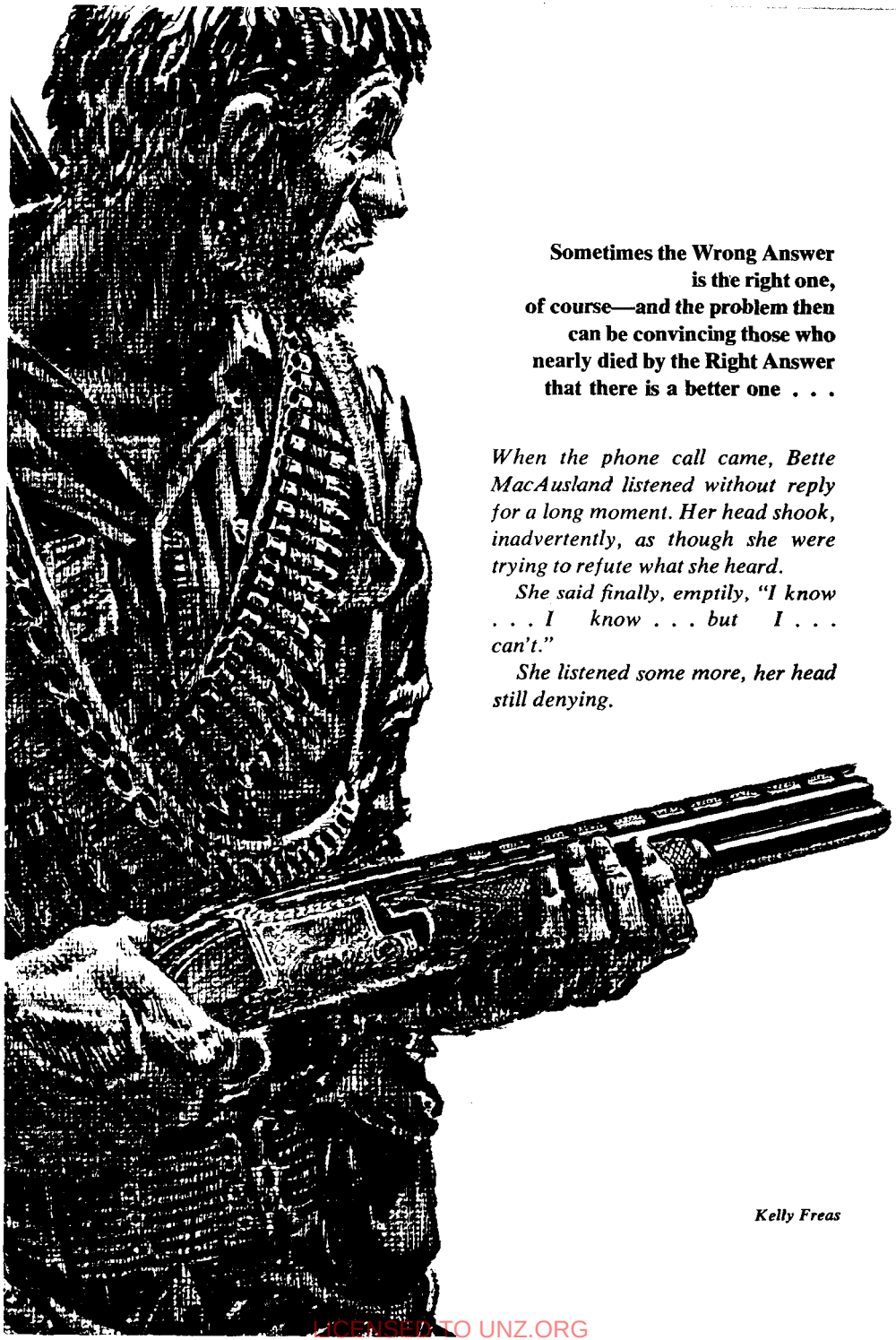

Sometimes the Wrong Answer is the right one, of course—and the problem then can be convincing those who nearly died by the Right Answer that there is a better one . . .

When the phone call came, Bette MacAusland listened without reply for a long moment. Her head shook, inadvertently, as though she were trying to refute what she heard.

She said finally, emptily, "I know . . . I know . . . but I . . . can't."

She listened some more, her head still denying.

Kelly Freas

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SURVIVOR / MACK REYNOLDS

She said finally, "I know, but I can't. You go ahead . . . I'm . . . I'm afraid."

The voice on the phone became more shrill, but finally she put the receiver back and sat there, cringing. She didn't answer when it rang again.

She got up and went to the door and locked it. And then, meaninglessly, pushed the hall table in front of it.

She moved automatically, her mind a blank.

She went to the bathroom, took a bottle from the medicine chest and got herself a glass of water. She didn't notice how many pills there were. She took them all and washed them down.

Then Bette MacAusland went back into the bedroom and stretched out on the bed without removing her clothes.

Donald hissed, "Ben, look down there!"

He was pressed to the wall, at the side of a window.

Ben Cotsell edged up to the window from the opposite side. They were speaking in whispers, though that was nonsense in view of the distance involved.

Ben said, "A survivor!"

"Oh God, another one."

Below, in the street, their object was making his way, slowly, cautiously, in and out the abandoned cars and trucks, walking in the half crouch men instinctively assume in combat, or in stalking prey. He was long unshaven, wore heavy denims and heavy work shoes and had on his back both a knapsack and a sporting rifle, complete with telescopic sight.

As they caught better glimpses of

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him, darting around this car, behind that, they made out, as well, a sawed-off double-barreled shotgun in his hands and a holstered hand gun on each hip.

Donald winced. "Look at those bandoleers crisscrossed over his chest. He looks like a character in a Pancho Villa movie."

Ben muttered dolefully, "I wonder how he got past the group up near the square."

"Probably during the night. Look at the size of him."

"He's young, and obviously tough. I better go signal before he gets into something."

Donald said, "I'll watch."

Ben went out the front door and to the stairway and Donald maintained his position at the window, periodically moistening his lips. He was a small man; had Thurber ever caricatured him, he would have brought out rabbitlike nuances.

In a few minutes, Donald heard the drum on the roof, beating out its simple rhythmic warning.

The one down in the street heard it, too, and swerved quickly, in immediate understanding and alarm. His eyes darted to the brownstone's upper floors and roof, and he scurried behind a stalled delivery truck.

Donald sucked in air. For a moment, he had been afraid the stranger was going to rush the house.

But then came the answering thumping from down the street. It sounded like the drum the Londres had improvised from a galvanized washtub. And then from around the corner the beat from the Congo drum the Chapman couple had found in the antique shop.

Thum, thum, thum—from here, there, suddenly from everywhere.

The heavily armed man scooted up the street, zigzagging.

Ben Cotsell came back and whispered, "Where is he?"

"Over there. Near the delicatessen."

"If he'd only stay there. They can get around to him through the tailor shop."

Donald moistened his lips.

On the street below, the newcomer didn't like the position he was in. He didn't like it at all. His eyes darted. He almost wished someone would take a shot at him, just to give him direction on where the enemy was. He considered running for it, rejected that strategy. Once on the run, he'd be an easy target for any sniper at window or on rooftop. As it was now, sheltered in this confusion of vehicles, they'd have to root him out, and that would call pause to any but the most valiant.

He hadn't liked those drums. They were the first sign of life he had come across this morning, and the significance was obvious. The neighborhood was alert to him.

He checked the safety on the shotgun unthinkingly with his thumb, flicked open the holster of the .38 Magnum on his right hip, for a quick draw. If they rushed

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him, he'd empty the shotgun, drop it and draw the revolver; he'd never have time to get the rifle into action, besides they would undoubtedly be too close for that. This street was comparatively narrow. They'd be out of some doorway and on him in split seconds; no, it was shotgun, then revolver. If he emptied the revolver, he had the .45 automatic on the other hip, but it was unlikely he'd live to use that—always assuming they would rush him.

He considered, and rejected, dashing into one of the stores, holing up inside a building. They'd have him trapped then. At least, out here, he had some choice of movement. If he could stick it out until dark . . .

But it was still morning, and these summer days were long.

His eyes darted around the windows again. Those windows behind which a score of men might be crouched, waiting an opportunity for a clear shot at him.

What were they waiting for? They had him pinned down. Were they saving ammunition? Given fire from several points at once, they could riddle this little group of cars that now semi-sheltered him. If nothing else, ricocheting slugs would seek him out, given heavy enough fire. They must be saving ammunition. His nerves were getting more taut by the moment. The drums had stopped now. First there had been one, then another. At the height of the signaling, there must have been ten or twelve of them in all.

Within thirty feet was the entry to a small branch bank. The windows had largely been shattered but the glass of the door was still unbroken, and opaque. From the corner of his eyes, he saw the handle of the door move.

His lips thinned back, he pressed against the heavy steel door of the street maintenance truck he was crouched behind. He held the shotgun at the ready, even began the trigger squeeze. Now this was it. This was the beginning.

The door opened slowly, and two stepped forth.

They were girls, at most in their mid-twenties. And they wore nothing save bikini bathing suits.

When the broadcasts had become such that it was obvious that this was it, that the steps taken were irrevocable, that by no furthest stretch of possibility could it be halted now, Benjamin Cotsell switched off the TV set and stared down at it for an empty moment.

He turned and went to the little bar in the corner of his living room. He hunkered down on his heels before the cabinet and fetched out the bottles both opened and full. He considered for a moment, then brought forth one each of the type glasses he possessed.

He had a better array than he had thought. Some of the bottles had been pushed to the rear of the cabi-

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net, those less often called upon, and now he found he had Cointreau, calvados, tequila and Cherry Herring, besides the more usual gin, whiskey, rum, brandy, vermouths and other wines.

He took the ice bucket and went out into the kitchenette for cubes. He mustn't be too *deliberately calm about this, he told himself wryly. There wasn't as much time as all that.*

Ben Cotsell emptied the ice trays and then automatically began filling them again with water from the tap, before catching himself. He grunted sourly, put down the tray and turned off the water. He strongly doubted there would be time to freeze more ice.

Back in the living room, he went over to his small library and sought out his bartender's guide and returned with it to the bar.

The first item for which he possessed all the ingredients was an Admiral. He crushed some of the ice, half filled a cocktail shaker with it, poured in one half jigger of Cherry Herring, one jigger of lime juice and four of gin, then shook it up vigorously, exactly to direction.

He grunted. He had forgotten to chill the cocktail glass. Well, that would have to go by. There were a lot of things that were going to go by very shortly.

He held his glass up in a silent toast to nothing, then snorted self-contempt at his Walter Mitty braggadocio and took down half the mixed drink. He hadn't remembered ever mixing an Admiral before. It was good, though his own bent was more to the dry side.

He carried his glass over to a window and looked down. There were an abnormal number of cars in the streets and a certain amount of the noise of horns, and occasional shots came up to him. He pulled down the shade, finished his drink, then went around the rest of the small apartment pulling down the rest of the shades. He was, he assured himself, being ridiculous. All glass would go immediately, anybody knew that. So would everything else, most likely. He lived in almost the exact center of Manhattan.

He went back to the bar, got the shaker, carried it to his favorite chair and sat there and drank up the rest of the Admiral.

The next item in his bartender's guide was an Applecar. He had the stuff for that, too. Cointreau and calvados, or applejack they called it up-State; same thing if it came from Normandy or the Catskills, apple brandy.

By the time he got to a Clover Club, by the way of a Bacardi, a Between the Sheets, and a Bronx, the fog was beginning to roll in. There was more noise from down in the street, but he snarled contempt at that.

For a while he tried to read some of his life-long favorites, winding up with the Rubáiyát. But he had to

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hold one eye shut to focus and gave it up.

When the fog rolled out again, he was mildly surprised to see daylight. He went into the bathroom and vomited. The water wasn't on. He went back to the bar and took inventory. The gin was all gone. He took up a half empty bottle of Irish and staggered back to the chair with it. He had finished it before the fog rolled in again.

When it rolled out, he found the liquor supply exhausted save for the Cointreau and some Italian vermouth, both of which had survived evidently as a result of having been taken into the kitchen somewhere along the line, and forgotten. He also found he had eaten the greater part of his small supply of canned groceries. The refrigerator door was open and what food had been there was largely spoiled. He was still half stoned and had no idea of how much time had lapsed.

The need was for more liquor.

He made his way to the door, tacking to starboard. The elevator wasn't running. He got down the steps, narrowly missing serious falls twice, and struggled up the street toward the liquor store. Struggled was the only term. The sidewalk was littered with every conceivable article of domestic existence. He vaguely remembered having heard the sounds of exodus during his binge. Evidently, those fleeing had been in every mental state up to and including sheer hysteria. There was even a small iron bed that someone had brought this far before leaving. Clothes, canned food, fresh food, masses of bedding, broken bottles, largely liquor, books, paintings, a typewriter, but above all, clothes. Luggage ranging from trunks to handbags, an abandoned pushcart, baby carriages, baby things, swim suits, fur coats, cloth coats, raincoats.

Everything.

Even a few bodies.

The streets were filled with cars and trucks. Abandoned. Some were even up on the sidewalks, last bitter, futile attempts to get past the traffic jams.

The liquor store was only a small distance up the street. Ben Cotsell made it. From time to time he saw other figures, but he brushed them from his mind. What difference did anything make?

The liquor store had been sacked, but not totally. He scrambled among the broken bottles. He found a carton and began to load it. Whiskey and gin were all gone, but he found a windfall in several bottles of Metaxa, the Greek brandy. He also found odds and ends of liqueurs and several bottles of Pomerol. He closed one eye. 1955, a very good year.

He took up his cardboard carton and headed back for the apartment, mildly surprised that as yet the first attack had not come off.

The stranger, shotgun at the

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ready, growled, "Stop, right there!"

"All right," Bette said agreeably. The two girls came to a halt, stood quietly in their near nudity.

The heavily armed man shot his eyes up and down the street, up to the roofs, up to the windows. He didn't drop his half crouch against the truck's side. His eyes came back to the girls, dangerously.

Bette said, "My name's Bette and this is Grace."

He snarled, "If this is a trap you'll get it first. Understand?"

Bette said reasonably, "That's obvious, isn't it? If it were a trap, we'd be shot first."

Grace giggled, nervously. She hadn't quite the self-possession Bette had. But she didn't move.

The stranger rasped, "What's this, a smart trick?"

Bette said, "Suppose the neighborhood wanted to welcome you, what would be the safest approach?"

He stared at her. For the first time he allowed himself to see her femininity, her youth. He couldn't have been more than twenty-five himself.

"Go on!" he snapped.

Bette shrugged shapely shoulders. "You came from across the river, didn't you? Where all the killing is . . . or was."

"Go on." His eyes flashed around again, to doorways, rooftops, windows.

Grace managed to say, "We don't want the killing here."

He tried to put contempt into his voice, but weariness came through the stronger. "Who did want it, anywhere? You had to defend yourself."

Bette said softly, "Two hundred million people defending themselves."

"It was each man for himself."

"The law of the jungle," Bette said lowly.

"What's this about the neighborhood wanting to welcome me? I came over here cause I had to. There's still food here. There must be."

"There's a good deal of food here," Bette nodded. "All you want. There are very few people left."

"You think I'm crazy? The minute I put this gun down, your gang will try to take me. I heard those drums."

Grace said, "We beat the drums whenever somebody new comes, so we can get ready to welcome him."

He stood erect, but still at tension which gave the setting a ludicrous quality of which he was conscious. There he was, a youth in physical prime, heavy with four firearms. And they stood before him in abbreviated swim suits. But it was he who was admitting fear.

"It's a trap," he said. "Why should you take me in?"

Grace turned her back to him and called into the bank building, "Father!"

The gun came up to the immediate ready. "No you don't! Anybody

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else comes out here and I let you all have it!"

The two girls faced him again, and held their arms wide, palms outward. They were obviously the ultimate in helplessness. And he was a male, and they the female of his species.

A man stepped from the doorway, an old man wearing a short-sleeved sport shirt, khaki walking shorts and slippers. On the face of it, he was weaponless.

"Stop!" the stranger barked.

The old man said, "What's the matter, son? Have you got to the point where you shoot just anybody you see?"

The stranger's eyes darted about again. "It's a trap!"

The old man shook his head and called over his shoulder, "Mother! You and Johnny!"

From the doorway came a middle-aged woman, and a six-year-old, bug-eyed at the armed-to-the-teeth newcomer. The woman smiled tremulously but said nothing.

The stranger's eyes went wildly up and down the street, demanding of the rooftops, accusing the windows, daring the dark doorways. His hands trembled. His face was desperate.

Three more women walked out of the shambles of what had once been the delicatessen. All carried children in their arms. They stared at him, a certain fear there, but a resignation, too.

Bette winked at him.

When the President's voice ceased, Cass Davidsen turned to his wife and to the three children who sat there stunned. The TV set went abruptly still.

Davidsen was not a young man, but there was a wiry strength in his tall, slight body. And there was a cool strength in his light-blue eyes.

Esther said, her voice uneven, but trying for calm, "But what is there to do, Cass?" She was a good ten years younger than her husband.

"Nothing," he said emptily. He walked over to the window and looked out, unseeing.

Dave shot suddenly to his feet, in all the energy of the teen-ager. "We gotta get out of here!"

Cass turned and looked at him. "Where would we go, Dave?"

"Anywhere! We got to get out of here. They'll hit here first!"

The little one began to blubber, not knowing why, simply knowing that the adult world which sheltered him was in confusion.

Cass looked down on the streets which were rapidly filling to the point of resembling Times Square on a New Year's Eve. The sound of vehicles, honking, motors racing, crashing—voices shouting, shrilling, raging—came faintly through the window.

"There's no place to go, son."

"We've got to go," *Dave yelled at him. "We've got to get out of the city."*

Cass looked at him strangely. "Ten million others are thinking the

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same thing, son." He shook his head. "They'll be ten million wild animals within hours."

Dave spun suddenly and darted for his room.

Esther said, "Cass. The subway."

Cass Davidsen sank into his reading chair. "And prolong matters a few hours, living our last in the dark, amongst the rats? Why, Esther?"

Dave was back, a short carbine with a seemingly over-large clip, in hand. It was a military weapon, converted into a deer gun. He had his old Boy Scout hatchet belted to his waist.

"Come on!" he said frantically. "We can make it to the bridge and get across into Jersey!"

Grace, who had been staring unbelievingly at the now dark screen, said, "But what then? Dad's right. Ten million." She was three years older than her brother.

"The government'll have some kind of arrangement. We gotta get going. Don't any of you realize, we got to get out of here? They might start dropping any minute."

Grace pointed at the screen. "You know why the TV went off? Because the technicians, the announcers, the actors, everybody—all took off. And you know what? I'll bet every policeman in New York is trying to get himself and his family out, too. And you know what the mayor is doing right this minute? If he's not already out of New York, he's trying to get out. And the same in Washington, and Los Angeles, and Chicago and everywhere else. You know what I think, Dave? I don't think there is any government."

Cass looked at his daughter. Ordinarily, Grace was the highly keyed one, but now, though there was a tremor in her voice there was none of Dave's hysteria.

Dave snapped, waving the short-barreled carbine, "It's everybody for himself. You got to look out for yourself. And the first thing is to get out of here and some way get to the mountains. We can get across the bridge."

Esther looked at her husband, even as she picked up little Johnny and tried to soothe him.

Cass shook his head. "Perhaps you're right, Dave. Perhaps those are the new rules, but, if so, I don't wish to abide by them. I don't wish to play the new game. I, for one, will remain here."

The boy's eyes bugged at him. "You're crazy! You'll be dead!" His eyes went desperately to his mother and sister. "Come on, I'll take care of you."

"I'll remain with your father, Dave."

Grace's mouth worked but she said shakily, "I think I will, too."

"You're all crazy," Dave yelled. He turned suddenly and darted from the apartment.

The sounds from the streets below welled higher.

More and more of the communi-

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ty streamed from doorways, or came around the street corner. None were armed. Some looked at the newcomer warily, but none gave sign of hostility in any form.

He gaped at them.

Cass Davidsen said mildly, "All right, son. This is about all of us. Do you want to join?" He looked at his watch, and then without waiting for answer, said, "You look hungry. The cafeteria is down the street. Some of the women have been doing up a special lunch for you."

Bette said, "Grace and I had better get some clothing on." She turned and reentered the bank, her companion following.

The armed man said suddenly, "I get it. You're all unarmed. You can use a guy like me. You need protection."

Ben Cotsell, who had been one of the last to come up, muttered, "As the old expression goes, like a hole in the head."

The scatter gun still held ready, the newcomer followed them and they filed into the cafeteria. He looked about quickly, narrowly. The interior was clean and was evidently used as a neighborhood gathering place as well as a community mess-hall. It fit, he decided. They were sharing the problems of food, water and fuel, rather than attempting to deal with such matters individually.

He sat down, his back to a wall, the short-barreled gun beside him on the seat and allowed them to bring him food. It had been a long time since he had eaten what might be called a regular meal. For longer than he liked to remember, it had all been cans or fresh meat inadequately cooked over an open fire.

He said suddenly, "The name's Burroughs. Ted Burroughs."

They had taken seats half circling him, but at enough distance so that he need not worry about their proximity.

Cass Davidsen, the oldest and evidently some sort of spokesman, nodded seriously and one by one introduced the others. There were some thirty in all, largely women and children and older men, though there were some, such as Ben Cotsell, Donald Weimer and Jerry Chapman who could have been little older than Burroughs, himself.

By the time he had finished eating, almost entirely in silence, Bette and Grace had rejoined them, dressed now in summer sportswear. To him there seemed a ludicrous quality in the fact that they were clean and their dresses new. They obviously weren't above looting. The tension largely over, now, he even allowed himself a slight, knowing sneer.

He snapped suddenly, "The way I see it, you people haven't got it on the ball to protect yourself. You need somebody like me to . . ."

Cass was shaking his white head, his pale eyes somber. He interrupted. "We need no protection, Ted."

The newcomer chopped out a

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laugh. "You don't know what's going on in this world now, Pop. It's kill, or be killed."

"We know," one of the women said softly and began to cry. One of her neighbors put an arm around her shoulders but said nothing.

Ted Burroughs growled, "Now look here. So far, nobody's coming back into the cities yet. They're afraid to. Nobody can figure out why New York wasn't hit first, like all the other big cities. But . . ."

Ben Cotsell said, "Where did you get the idea the other cities were bombed, Burroughs?"

The armed man stared at him. "Don't be stupid. Everybody knows the war's on."

Ben shook his head. "A couple of streets over there's a ham who's managed to rig up his set. He's raised others, even one in Switzerland. There is no war."

Burroughs' eyes were bulging. "You crazy? Of course the war's on. Everybody knows that!"

Cass Davidsen gestured in a sweep, as though to include not only the large dining room, but all Metropolitan New York as well. "There is no war, Ted. We've been trying to reconstruct what must have developed, but our data is inadequate."

"I *know* what happened, damn it! When the news came through that the politicians on both sides wouldn't back down, that everything possible had been tried, why, everybody in this whole area, everybody in cities, took to the country. Everybody."

"Not quite," Bette said. "Some of us stayed."

He looked at her. "That's what I can't understand. Why? You must all be nuts!"

Donald said, "Some of us didn't want to leave. We had various reasons."

"Including being petrified with fear," Bette said.

"Including no desire to live in a dog-eat-dog world," Cass said gently.

Ben said, "We've heard some reports, of course. What happened? What happened to you?"

The other rubbed the back of a dirty hand over his chapped lips, as though to wipe away spittle. "I don't like to talk about it. It was everybody for himself. Everybody knew the bombs were going to come any minute. You had to get out of the city. Those that had cars started in them. Those that didn't, tried to bum rides, or get taxis, or steal somebody else's car. That's where the first fighting started. Those with guns, or even knives, tried to get a car. Even the cops, even soldiers and sailors. But that didn't last long. A million cars trying to get out of town at once. Practically none of them made it. A traffic jam would start and then people would pile out, leaving the car there and start running for it. With the cars abandoned in the middle of the street, then the

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jam never was cleared up, especially with no cops."

He shook his head at the memory and went on. "Those of us that did get out tried to take over what cars and trucks there were when we got to areas where there were no jams. And that led to more fighting. If you didn't have a gun, you kept going until you found some dead body that had one. Or you broke into a sports store. Some of the towns we came to had put up barricades and the police had issued guns, some from the National Guard armories, I guess. But most towns, until you got all the way up to Kingston and Catskill, were mostly emptied, too. Everybody heading back into the mountains.

"But when you got up there, the food started running out. Some of us tried to go to earth before we got into the mountains. Tried to break into the bomb shelters. The people in the shelters fought back but those places were mostly never meant for defense and we knew there was food inside, and shelter from fallout. So we'd break in. Sometimes you'd see a bomb shelter that'd been captured and then captured from those who had captured it, until it wasn't worth keeping, everything broken and shot up, everything looted.

"There began to be fewer and fewer women and kids. And everybody had guns by now. Everybody started shooting first. Right on sight, if you saw somebody else with a gun, you shot first then went to see if he had anything worth taking, food, guns, ammunition." He spun suddenly and glared at Cass Davidsen. "And you say the war didn't even start."

The old man had been listening, his eyes closed in pain. He said, so softly that the other could hardly hear. "It never started. By the time it was ready to start, all reason for it had ended."

"All reason had ended, period," Ben Cotsell muttered.

"I don't get it," Burroughs complained. "Everybody knows that all the big cities and military and naval bases, airfields, munition factories and the like were going to get it first."

Cass nodded. "Yes. That is what everybody knew. Everybody in the civilized world. Not just in the United States of the Americas and in the Soviet Complex, but everywhere. And the moment it became obvious that there was no return, everyone for all practical purposes" —here he let his eyes go around the neighborhood assembly—"everyone sought safety in flight. Who was so insane as to remain in a city when it was so well known that not only we, but the Soviets as well and Common Europe, had enough destructive ability to level every city on earth? Not to speak of the Chinese and the other countries which were late in the race but still had their less plentiful but still ultra-destructive weapons.

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"Who was so insane as to remain in a city, or near an industrial complex, or a transportation hub, be it rail center, port or airport? Who so insane as to remain near a military installation, no matter how small?"

He wound up with an ironic shrug. "The world as we knew it, collapsed."

The heavily armed newcomer hadn't ceased to stare. "Nobody out there knows it," he blurted. "They-'re all still fighting each other. All still afraid to come into the cities. There's not even many of them left. The food's either eaten, or wasted, or destroyed. Most of the women and kids and older people didn't last the week out."

"And still they fight," Esther Davidsen murmured in agony.

"There's one thing," Burroughs growled thoughtfully. "There's still food in the cities. If they're all as deserted as this, there's lots of food." He looked up and rapped, "But how do we know the bombs won't still come?"

"Who would fire them, and why?" somebody said. "All the reasons are gone. Everything's gone. There's not even a pretense of government here. Why should we think it different anywhere else?"

"How about the military? The army, the air force, the navy, the Polaris subs and everything?"

Cass shook his head wearily. "We don't know. There's lots of things we don't know. Evidently, no one gave the word to begin. The world simply collapsed in terror. And by this time, who cares about the old issues any more? There are no governments, no conflicting socio-economic systems, and I suspect for all practical purposes there are no armies. Armies need a vast economic potential behind them. Even half a century ago wars were no longer won by brave men, but by he who controlled the biggest industrial system."

Ted Burroughs came to his feet, his shotgun momentarily forgotten. He ground a dirty fist into the palm of his left hand. "We've temporarily got it made here. We've got food. Everybody's hungry out there. That's why I dared come back. I had to find food, no matter what chance there was of being caught in a missile attack. What we've got to do is get ready for them. We can find guns in the sporting stores, in the police stations, maybe even some tommy guns."

Cass was shaking his head. "You don't understand yet, son. Nobody among us has killed. We remained behind because we were the few who refused to survive . . . by killing."

The younger man growled contempt. "What happens if a guy like me comes along and takes over?"

"The would-be man on horseback," Ben murmured in resignation.

Burroughs struck himself with his fist on the front of the soiled denim

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jacket. "To make it blunt, suppose right here and now I let you know I'm the boss? The dictator. What could you do?"

"Nothing," Cass Davidsen said mildly. "If you wish to be dictator, go right ahead."

The young fighter stared at him.

Donald cleared his throat apologetically. "Did you think you were the first survivor to come back across the bridges, or through the tunnels, or down the parkways?"

Burroughs swung his eyes to the little man. "What is that supposed to mean?" he demanded.

Cass Davidsen said, "Why didn't you shoot Bette and Grace?"

"Shoot them? Why? They couldn't have been carrying any kind of weapon in a bikini."

"Or me, when I first appeared?"

"You're an old duffer. Besides, you didn't have a gun either." He looked around at the others of the small group. "None of you have guns. You must be nuts!"

Cass said gently, "Ted, the last survivor who decided he wanted to be the boss here, the dictator, lasted for only three days."

The boy was suddenly the fighting man again. He snatched up the shotgun, eyes narrow. "What is that supposed to mean?"

"What do you think?" Ben growled. "Another survivor came along. He had similar ideas. They shot each other. We threw their guns into the river, after burying them."

Cass Davidsen took it up. "We're not the only small community on Manhattan, Ted, and I assume there are equivalent groups in all the large centers. The survivors stream back into town at the rate of several hundred a day, I suppose. Most are starving. All are desperate. All are armed. We try to welcome them, as we did you. Some join us. Most cling desperately to the security they think their weapons give them. Those that do, sooner or later run into their equal number and one or the other, or both, are killed. We continue on.

"Ted, sooner or later this will end. The first steps are already being taken. Our ham operator is but one small example. What the end will be, I do not know. However, man had achieved before doomsday the ability to produce an abundance. That ability is still with us and one day we will utilize it. But there will never again be huge military machines. Never again will millions of politicians and bureaucrats dominate the nations, living as parasites on the useful members of society. Never again will our society be based on dog eat dog, each man for himself and the devil take the hindmost.

"And now will you hand me those guns of yours, Ted Burroughs, so that I can give them to Bette and Grace to throw down the nearest sewer? You see, at long last the meek have inherited the earth. Simply because there are no others left. Or soon won't be." ■

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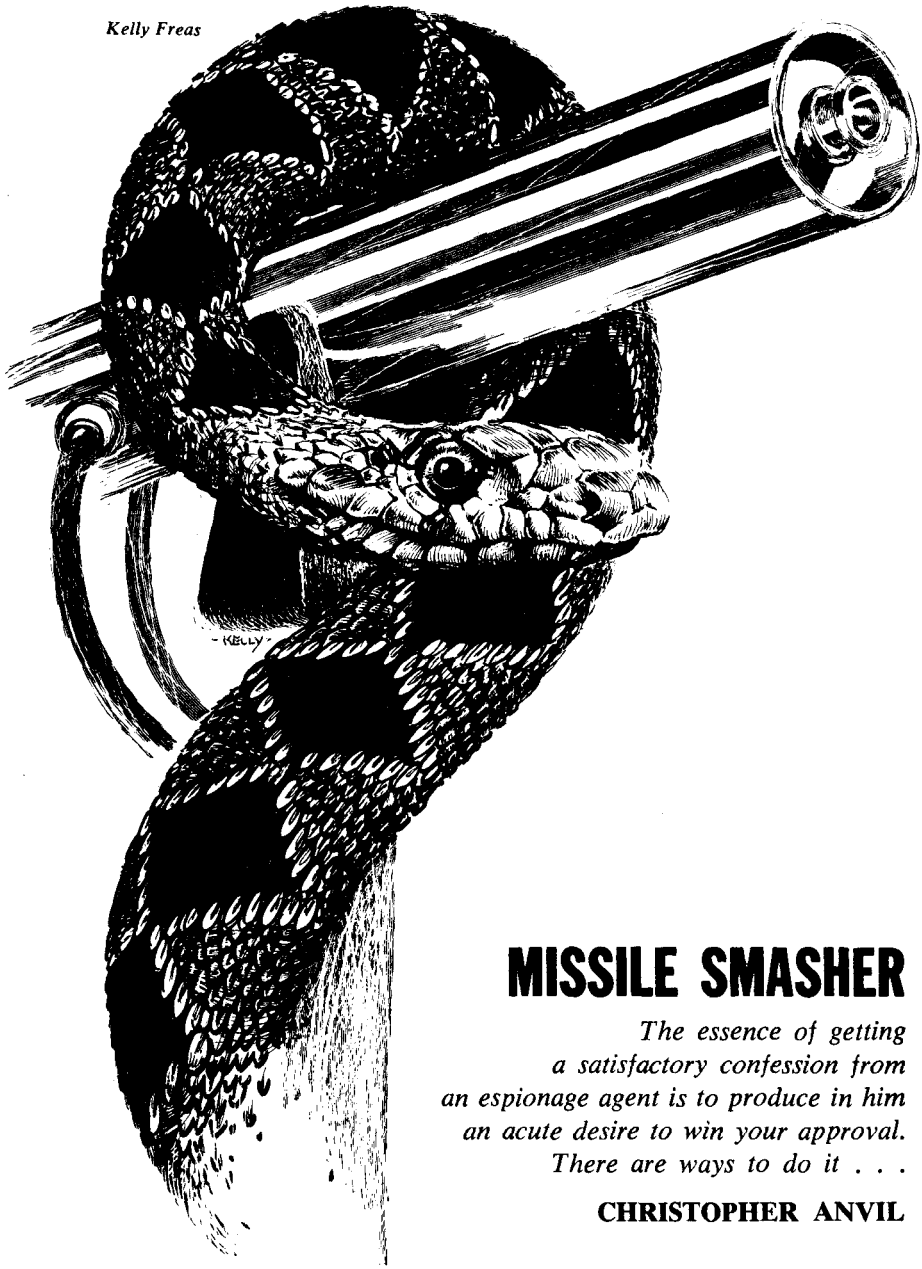

MISSILE SMASHER

The essence of getting a satisfactory confession from an espionage agent is to produce in him an acute desire to win your approval. There are ways to do it . . .

CHRISTOPHER ANVIL

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The night air was warm and almost still, the only sound the faint lapping of the lake, far below, against the rocks. Long after sundown, the parapet atop the tower still felt warm. Richard Verner, crouched beside it, looked across the water at the dark, tree-lined shore, then down at the shadowy buildings below the tower. Nowhere could he see a guard.

The faint moonlight, diffused through high clouds, lit the stone floor that formed the top of the tower, to show a small metal table bearing several empty glasses, an ashtray and a half-empty bottle of suntan oil. Nearby, on the floor, was a thin mattress covered with a large beach towel. Beyond that was a dark bulky shape that in daylight could be seen to be a gaily-striped tent, like a tent at the beach where people might change their clothes.

In the faint moonlight, Verner quietly crossed the stone floor, to very gently draw open the rough canvas flap of the tent.

Inside, it was pitch dark. A current of heated air drifted out past him. Then, as he carefully moved inside, he touched something hard and round, angled up from the stone floor toward the interior of the tent. In that instant, he knew that what he was here for was real, and not a fantasy after all.

The general who had brought the problem to him the week before had warned him it would seem unreal. Straight and spare, with a craggy face and tarnished pilot's wings above a triple row of ribbons, the general had said, "Mr. Verner, I understand you're a heuristician—that it's your business to help solve problems other experts alone can't handle. I suppose you must have seen many strange problems. But I doubt that you've ever seen one as strange as mine. I'd like you to look at this photograph, and then listen to me very carefully."

Verner took the slightly foggy color photo, and saw a gray stone tower, rising above thick green forest against a deep-blue sky. Atop the tower was a nearly flat-roofed tent, gaily striped. Just visible through the opening of the tent was a thing that looked like the end of a large telescope.

The general said, "My problem, Mr. Verner, involves our newest rocket-launching facility. Of the first six important launches from this site, one was successful, three went off-course so wildly that they had to be destroyed, and two were satellites that went into very unsatisfactory orbits. This is a record of one success and five failures. The trouble has been traced to a fantas-

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tically rapid build-up of heat at the base of the rocket. We are convinced that we have had, among other things, exceptional erosion of the nozzle through which the exhaust gases pass. These rockets are very carefully checked before launch. Nothing has been found wrong with them. Yet without something wrong, this heat buildup is impossible. The only explanation of these failures is *sabotage after the rocket is launched.*"

Verner sat back, eyes narrowed in concentration, the photograph in his hands.

The general said tensely, "We are at a crucial point in space research. These continued failures could give our adversaries a lead we might never overcome. They have every reason to sabotage our rockets. But how? How could they possibly sabotage a rocket *after it is launched?*"

Verner listened intently. The general's urgency gave his words added weight as he said, "There seems to be only one possible way. Some years ago, a method of forming light into a very intensely coherent beam was invented. This device was called the 'laser.' Since then, much highly-classified work has been done on it, here and abroad. We are satisfied that very intense bursts of coherent light, focused on our rockets as they reached a given altitude, could create the very heat effects that have caused us so much trouble."

"And this photograph?"

"That was taken by accident from a handling tower by one of our technicians. He didn't think anything of it till he noticed the thing inside the tent."

"What looks like a telescope?"

"Yes. But why mount a telescope inside a tent? One technician thought it was a telephoto camera lens. *We* think it's the end of a highly-advanced projector of intense bursts of laser light. This is the exact kind of thing, Mr. Verner, that we would have laughed at a few years ago. But a few years ago, we would have laughed at the idea of sending a man to the moon. We don't laugh at these things any more."

"Wouldn't a beam of *light* be seen?"

"The unsuccessful launches were carried out in full daylight, and the rocket, of course, makes a very dazzling glare by itself. The laser light would be focused in short intense bursts at the base of the rocket. In these circumstances, I doubt that we would see anything at all, except the final results of the heat buildup."

Verner thought about it in silence, his eyes half-closed, and then said, "The problem isn't just to stop the sabotage, is it?"

The general smiled. "I can see you're the man we need. No, we could end this sabotage in a number of ways. But think what would happen. To begin with, these saboteurs have set the device up in this tower, built years ago by a rich man who wanted his own castle, and started it on an island near what is

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now our launching site. His money ran out, but he got the tower finished, and it has walls several feet thick. The grounds there are so overgrown they're almost a jungle. The men who operate this device must *expect* us to rush out there, as soon as we discover it. They will methodically destroy the device, put their hands up, and get ready for eventual trial and prison sentence. They have already cost the country hundreds of millions of dollars worth of damage, but that's only the beginning.

"During the trial, this laser beam, which has worked only on a slowly-rising rocket lifting off from a fixed location, will be magnified into a new communist superweapon, to create an international scare. Next, we will be accused of gestapo methods in capturing these people. They've undoubtedly got it all figured out, our move, then their move. We've considered every move we can make, and there isn't one that really pays us back for the damage they've already done the country. But we've studied some of the work you've done, and we're convinced you can find a way to hit them where they don't expect it, without our being directly involved, and throw them off balance."

Verner said, "You realize I often have to call on experts of every conceivable kind, for facts and for the use of their special skills?"

The general nodded. "Get whoever you need. We'll help, too."

Now, inside the dark canvas tent atop the tower, Verner carefully felt of the massive pipe-shaped brace, and cautiously ran his hand along the cool metal, to where the brace joined a second and a third brace. He could feel at the center a kind of heavy metal platform around a vertical pin, but the actual laser-device was not there. Next he ran his hand along the metal to the floor, felt the hollow where the heavy pipe of the brace was bolted to a flattened metal bar cemented into the floor. He straightened, and examined the rest of the tent.

To one side was a large dark blot on the stone floor, and he knelt beside it to find a hole leading down into the tower, the trapdoor opened back against the parapet. Several minutes of careful exploration disclosed, directly above the hole, a frame of heavy lumber supporting a large pulley, whose rope was coiled up in a corner of the tent.

Somewhere down in the tower was the laser device. When the time came, it would be hoisted on the rope and mounted. For now, it was out of reach.

Verner stepped out of the tent, and looked up at the large silent shadow, drifting overhead. He aimed a tiny shielded flashlight upward, blinked it twice, then twice again.

A smaller shadow detached itself from the larger, dropped down onto the tower, and turned uncertainly.

Verner reached out, took the soft

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cloth of the camouflage suit, and tugged gently. The shadow became a man of middle height, breathing a trifle hard from exertion and excitement. In a quiet whisper, Verner described the situation. The man nodded, and slipped into the tent.

Uneasily, Verner waited. Down on the ground below the tower, two large dim forms slipped in and out of the shrubbery and the deep shadows of the trees. Dogs, searching for any intruder.

From the tent came an occasional faint glint of light, too dim to reflect down into the tower, but bright enough so that Verner carefully drew the tent flap shut.

Overhead, the dark shadow moved a little aside, then back, and once a dim reflection showed for an instant a long line curving away toward higher ground in the distance, and a bar-taut line and dangling release-cord leading down to the tower.

Then there was a quiet rustle of cloth, and a murmur. "It's done."

Again, Verner flashed his light upward, and this time a long knotted rope swung across the tower. He caught it, waited till the other man climbed awkwardly up, then followed. As he pulled himself into the man-carrying basket of the balloon, it was the tower that took on a look of shadowy unreality. Then it was drifting away into the night, and Verner knew that they had either won or lost, but they wouldn't know the answer till the next day.

Early the next morning, the general stood beside Verner, watching the tower through binoculars.

"I don't see," he said, "how you will even know when that laser device is in place, much less hope to put them out of action. Remember, the mere sound of a helicopter will warn them, and then they'll destroy the laser."

In the binoculars, the striped tent stood out sharp and clear atop the tower—and suddenly blurred in a puff of dirty yellow smoke that billowed out from beneath it, burst out in a cloud past the flap—and then two men staggered out, the yellow cloud swirling around them.

From one side, fast and low, a helicopter shot across the treetops, whirled over the tower, climbed sharply, and the canvas tent, caught in a trailing net embedded with hooks, ripped up and off its frame, showing a thick stubby cylinder looming through the yellow smoke.

Already, a second helicopter was streaking in, to pause for an instant as a man wearing a gas mask dropped to the flat top of the tower, threw a bundle down the hole, bent intently at the cylinder, then lifted it and a cone fixed beside it, put them in a large net lowered from the helicopter, caught a rope and swung up.

The helicopter lifted, gained speed, and was gone.

Verner said, "Several cameras have already taken pictures of that device, from long distance, and from the helicopters. The man who took

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it from its base is an expert at defusing bombs and detecting booby traps. The large bundle he dropped into the tower was a little something extra—part payment for the damage these people have done. It may persuade them to be cooperative. Who knows?"

The general smiled. "Now we will proceed with the launch."

The rocket was a tiny dot high in the sky, and the engineers were grinning at each other, when the general said, "How did you manage to gas them from long distance, and how did you know when they had the laser in place?

"We got a specialist in there who laid down a thin transparent insulating film where the laser was to rest, and who then, as I understand it, *sprayed* a thin circuit on the film. As soon as the laser was in place, it changed the electrical characteristics of the circuit. That activated a relay that touched off small gas cartridges packed into the hollow legs of the support."

"And what was that bundle that was dropped into the tower?" the general asked.

"To even up the damage the saboteurs have done, we have to do more than get the laser. Our own research people may already have a similar device. So the saboteurs need to be cooperative and answer a few questions."

The general smiled. "How do you propose to manage that? These men are tough."

Verner nodded. "The trouble at the top of the tower would be pretty sure to bring the others up in a hurry. And those on top would go down as soon as possible. It follows that both sets of them would pass through the room directly below the top of the tower."

A phone began to ring, and as someone reached for it, the general frowned and said, "How—"

"That room," said Verner, "is where the bundle went."

The technician holding the phone turned in astonishment to the general. "Sir, some self-confessed saboteurs are out at the gate. They want medical aid."

The general blinked. "What for?"

"Among other things they claim to have been attacked by swarms of hornets and a number of scorpions. But their main difficulty seems to be that they got unexpectedly tangled up with half-a-dozen rattlesnakes."

Verner said quietly, "There's an ambulance truck standing by with everything they'll need. But it would be ordinary courtesy for those saboteurs to answer a few questions first."

The general gave a low whistle.

"That," said Verner gravely, "should solve the problem."

The general grinned suddenly and turned to the technician.

"Send them in." ■

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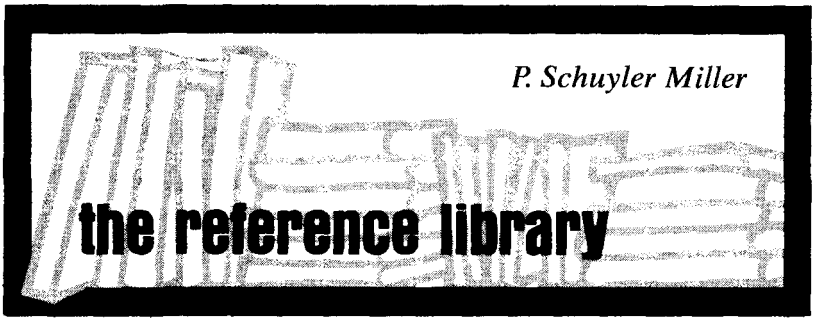

THE "HUGOS"

The rules for nominations for the 1965 Science Fiction Achievement Awards arrived too late for me to mention them last month. Only members of the 1965 or 1966 conventions can nominate, and their lists of candidates had to be in by May 1st, so it's too late to roll any logs.

The news is a special category for "Best Story Series," which is going to be a tough one, hotly fought. Astounding/Analog has more than its share of candidates: "Doc" Smith's "Lensman" series, Heinlein's "Future History," Asimov's "Foundation," Kuttner's "Baldies," Simak's dogs, Leinster's Med Service. But the Burroughs fans will be in there plugging for John Carter—in fact, I got the announcement from them—and old-timers will honor Smith's "Skylark of Space" series over the Lensmen. And there are the Tolkien books, and the de Camp-Pratt "Incomplete Enchanter" books. The announcement does not make clear whether a series of three or more short stories is adequate. What about Asimov's robots? What about Schmitz's agent of Vega? What about?

The other categories will be orthodox: best novel (serial, hardback or paperback) published in 1965; best short fiction; best professional and fannish magazines; best professional artist; best drama (radio, TV, stage or film).

Whichever the winners turn out to be when they are announced in Cleveland on the Labor Day weekend, I can assure you that there will be complaints over the choices. Every Convention Committee for the last several years has tried to figure out a way of giving the Hugos more status.

First, these are awards by fans, not by the Committee or by reviewers—as the former International Fantasy Awards were. If I pay my registration and join the Convention I have exactly the same voice in se-

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lecting the winners as the kid down the street whose hobby is monsters and who never looks at Analog. This is democratic, but does it match the awards with the best stories?

The biggest flaw was pointed out long ago by "Bob" Tucker, who has equal qualifications in fandom and professional SF writing. He argued that a superb original science-fiction novel published only as a hardbound book—his example was George R. Stewart's "Earth Abides," but a couple of his own books are equally valid—will rarely, if ever, stand a chance of winning a Hugo. Reason? Because the people voting simply won't read it the year it comes out, unless they find it by chance in the library. They may not even know it exists. Instead, they'll vote for the serials and "complete novels" they have read. This, again, is sound policy and I follow it myself, but it shuts out what on literary grounds are apt to be the best books.

The objection is still valid, but for different reasons. Now a book has rough sledding unless it came out as a paperback, from a well distributed publisher, in the year it was eligible. Only nuts and old-timers attempt to look at all the magazines any more —there are two that I've never seen, since they're not distributed at all in Pittsburgh—so a serial in a big-circulation magazine may get into the finals, but an excellent story from a hard-to-find 'zine won't. If an original book also comes out in a paperback edition in the year of eligibility, it does have an advantage: "bandwagon" voting because of the prestige of the book, plus the honest votes of those who read the paperback edition.

It's claimed that with the awards hanging on the votes of a relatively few—the Convention members—there is likely to be log-rolling and ballot-stuffing. Well, there is—but I have yet to see a Convention Committee that didn't spot the phonies and cope with them quietly and firmly. The cheaters are so incredibly clumsy! And I suspect anyone smart enough to get past the Committee is probably intelligent enough to be plugging a good book.

This year something new will be added, though not to the Hugos. The recently formed Science Fiction Writers of America—professionals, with extremely high standards—will make the first of a series of annual awards comparable to the "Edgars" of the Mystery Writers of America. Science fiction only—no fantasy—but it will be interesting to see how the professional and fannish votes compare.

A MAN OF DOUBLE DEED

By Leonard Daventry • Doubleday & Co., Garden City, N.Y. • 1965 • 191 pp. • $3.95

For reasons best known to the publisher, this story of the year 2090 A.D. was classed with the mysteries, although the jacket makes no bones about labeling it science fiction. It has a lavish assortment of standard

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ingredients, and its English author has won an award for his short fiction, but Doubleday would have done far better with Ballard or Brunner.

Claus Coman, the hero, is a "Keyman"—one of a tightly-organized fraternity of telepaths who use their powers to keep Mankind in line. He is just back from Venus, and settling down nicely with his two "committed" companions, one blonde, one brunette, when he is sent off to persuade the top man in the World Government to vote for a program of managed war. This, the Keymen believe, will allow the world's teenagers—who are killing and maiming for "kicks" at an alarming rate—to slaughter each other instead of their elders. This man, Marst, is guarded by two antisocial telepaths—"jokers"—a man and a woman. And so the fun begins.

There are plenty of bizarre ideas in the author's Twenty-First Century society, and a telepathic James Bond is useful, though not novel any more. Unfortunately, the story limps. He tells us about such key things as the juvenile anarchy instead of showing them, and a society that has spread over the planets is tossed off as commonplace—perhaps intentionally, but with loss of effect. And, if the stilted conversation is also intended as a technique showing that Earth of 2090 is tired, bored, artificially formal, then it fails to do its job. Neither the people nor the world are believable.

TWICE 22

By Ray Bradbury • Doubleday & Co., Garden City, N.Y. • 1966 • 406 pp. • $4.95

This is not a new book, but an omnibus volume made up of the forty-four short stories from "The Golden Apples of the Sun" (1953) and "A Medicine for Melancholy" (1959). Some are in his best vein of fantasy/science fiction—what Judith Merril very properly encompasses in her meaning of "SF"—some are "straight" stories about distorted people seen through a narrator's uncorrected eyes and mind.

If you can't stand Bradbury, you'll find it out quickly enough by sampling this collection—neither his best nor his worst, but typical. If he affects you like LSD in large doses, why you'll find that out here, too. Me, I'm manic-depressive on the subject: I go over the roller-coaster. Or does he?

SPIRITS, STARS AND SPELLS

By L. Sprague de Camp and Catherine de Camp • Canaveral Press, New York • 1966 • 348 pp. • $5.95

The subtitle of this book explains its content well enough: "The Profits and Perils of Magic." Parts of it have appeared as articles in various magazines, including this one, but all have been revised and welded together into a running account of the wrong-headedness of irrational Man, which seems to make him a natural patsy for con-men.

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I have the feeling that the de Camps, rationalists themselves, simply could not generate the same kind of understanding interest in this behavior that they showed in their examination of ancient ruins (archeological and archeologists), or that Sprague brought to his classic study of lost continents. Sprague was, after all, brought up on the complex geography of the western Adirondacks and knows very well that parts of that nearby region may not have been seen by man since it was open tundra eleven thousand years ago, if then. He can believe in lost places, but not in ghosts, fairies, and the arcane secrets of numbers.

By far the best chapter is the last, "The Great Glass Jewel," which sums up the authors' conclusions about the interrelationships of magic, religion and science. For a general audience, perhaps it belongs where it is; for an Analog audience, I recommend reading it first . . . then the documentation . . . then rereading it at the end. Meanwhile you will have dipped into the various forms which magic has taken and is taking, and will have been introduced to some of the eminent dupes who believed in it and the successful charlatans and fanatics who hoodwinked them.

And this is my main quarrel with the book: it is presented almost wholly as a ballet of dupes and charlatans. It doesn't seem to me that the authors have accepted or given enough weight to the very basic axiom: "You can't reason with revelation." It may be that they felt they could not develop this principle without coming to too close grips with the argument that all forms of religion are also irrational, codified magic. However, it is pretty basic that once any system of teachings has been accepted as divine revelation, whether it is taught by Mary Baker Eddy or Madame Blavatsky or the Druids, logic and reason are irrelevant. The outstanding property of a miracle is that it *is* impossible by worldly, scientific tenets but god's play to the deity and his, her or its appointed agents. The history of religions is full of the conflicts of the heretics who tried to apply reason to revelation.

I think, too, they are a little too unyielding in their criteria for distinguishing between scientists and charlatans, between estimable writings and the work of crackpots. Many an effective young scientist today dresses eccentrically (by middle-aged standards), is violently self-assertive (though not necessarily in his field), and if he works for a large company with an eye on patents, is ostentatiously secretive or loses his job. No archeological "experiment" can be repeated by others, for the simple reason that a site is destroyed by excavation and the excavator's notes and photographs of what he saw are all that he or anyone else has as a basis for second thoughts. It may or may not be possible to find a close analog. Indeed, most biologi-

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cal work falls into this category: *pace* Heisenberg, physicists and chemists work with enough atoms and subatoms so that their behavior can be considered statistically identical from experiment to experiment, but even bacteriologists run into exasperatingly nonstatistical behavior among microorganisms.

By the same token, an index is a convenience for the lazy reader who doesn't want to become familiar with the whole book. It has become a publishers' convention, especially in the English-speaking, pressed-for-time portion of the world—and is handled more and more sloppily, I'm sorry to say. Some universities and some publishers insist on "prestige" bibliographies intended to suggest that the author has read everything ever written on his subject. Others, to whom I incline, like to see a bibliography limited to the references the author has used and to which he makes useful references. (This is, of course, the kind the de Camps have.)

And Occam's Razor doesn't always give a clean shave. It is still simpler to believe that the Iroquois-speaking Indians brought a new, disparate culture into the Algonkian Northeast, than to contend that the material culture of both Iroquoians and Algonkians, over the last thousand years or more, evolved from the same base, whose own origin is still unknown. The diehards prefer the simpler explanation; archeologists are finding that the complicated one fits the evidence better.

People are so much more complicated than electrons. Perhaps they are inherently irrational.

A NICE DAY FOR SCREAMING
By James Schmitz • Chilton Books, Philadelphia • 1965 • 159 pp. • $3.95

Five of the six stories in this collection first appeared here in Analog between 1962 and 1965; the sixth, "The Tangled Web," is from *Amazing Stories,* where it was called "The Star Hyacinths." James Schmitz ties them together with a convenient conceit: they are all supposed to be happening in different parts of the Galactic Hub during one day in A.D. 3500. What's a "day" under such circumstances? Who cares? The stories are independent; the author is Schmitz.

The title story is a very slight gimmick yarn about an attempt to probe Space Three. In "The Winds of Time" another ship becomes involved with space, time and some unpleasant—uh—people. "The Other Likeness" brings us to the culmination of the genetic plot of the Great Satogs to plant pseudo-humans in the Hub. It has a lovely twist at the end.

"The Tangled Web" is indeed an intricate mess of scheme and counter-scheme, all directed toward salvaging the fabulous "star hyacinths" from the wreck of a lost spaceship. It's a private eye story of a kind, with more action than deduction. Then

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comes "The Machmen," with an animal trapper trying to escape plotters who have been given mechanical powers.

Finally, in my favorite, "Balanced Ecology," a pleasantly peculiar world helps the Good Guys against the Bad Guys. It was here in March, a year ago.

Schmitz is Schmitz . . . but these aren't the unforgettable episodes in "Agent of Vega," or "The Witches of Karres," or . . . There have been better days in the Hub.

THE GALACTIC TROUBADOURS

By A. M. Lightner • W. W. Norton & Co., New York • 1965 • 237 pp • $3.75

Here is an original science-fiction yarn for teen-agers that has a nice idea but doesn't develop it half as well as the author's "Doctor to the Galaxy." A group of young people, fed up with the routine of their home planet, accompany a somewhat naïve professor on a tour of other worlds where their songs and zeal for changing whatever they encounter cause more than a little trouble.

It may be a superannuated adult point of view, but from this easy chair the kids from Hercules V—like, I suppose, the kids who are currently in revolt against anything that comes handy—are lucky to get back alive. They never do learn the fairly important point that other people have a civil right to do things their way, however much you dislike it. I don't know whether this is the author sympathizing with the "-nik" philosophy or catering to it. And her switches on familiar folk songs are horrible. Surely the chronicler of Dr. Garrison Bart and Acoma could do better than this!

THE UNIVERSE BETWEEN

By Alan E. Nourse • David McKay Co., New York • 1965 • 208 pp. • $3.95

Two stories which were published here 'way back in 1951, "High Threshold" and "The Universe Between," have been transmogrified into this science-fiction novel for young people. You'll remember—if you were around then—the story of the brat who managed to look through a window into another kind of space, when adults went mad. This is the curtain-raiser for the story of her son, who can visit the other world at will, and who discovers that a matter-transmission project is raising havoc there.

As adult stories, these were full of convincing twists, good characterization, and awkward judgments. Aimed at a younger set, they're just as good and twice as thrilling.

ROGUE SHIP

By A. E. Van Vogt • Doubleday & Co., Garden City, N.Y. • 1965 • 213 pp. • $4.50

Like many another, A. E. van Vogt is working over his carbons and patching little ones into big ones.

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This book is the synthesis of "Centaurus II," here in 1947, "Rogue Ship" from *Super-Science* of 1950, and "The Expendables" from *If* of 1963. It's a generation-ship story, with successive generations in a starship searching for habitable planets fighting out their personal and ideological battles among themselves, and finally returning to Earth as the fantastic derelict that is traveling faster than light, yet can be boarded and explored by people from the world that it bores through like a hot nail through butter.

This is a better welding job than some Van Vogt has been doing of late. What we really want is to see what kind of new stories he will write after all these years. Can he top the marks he set himself with "Slan," "Null A," "The Weapon Shops," and his very first story, "Black Destroyer"?

ALL FLESH IS GRASS

By Clifford D. Simak • Doubleday & Co., Garden City, N.Y. • 1965 • 260 pp. • $3.95

Although this book will almost certainly be a candidate for best of 1965, it wouldn't be in the league at all if it were not for its author's ability to spin a warmly believable story out of a near-stereotype in science fiction. This is the one in which nonhuman intelligences from a parallel continuum, passing through an invisible "gateway" to our world, attempt to overrun us and are blocked by the people of a small town.

In the case at hand the invaders are purple flowers—actually one world-encompassing organism—whose strange abilities have made them a behind-the-scenes power from their bridgehead in the country town of Millville. As the story opens, they have penned the town and its people under an impenetrable bowl of force or energy as a preliminary to their invasion of Earth and take-over of humanity.

Needless to say, in a Simak story things can't be all that simple, and they're not. The flowers are part of a galactic society which may be able to bring us more than we lose in freedom. They are powerful enough to blot us out. And the solution, when it comes, is frankly unbelievable. But up to that point Clifford Simak has persuaded you, if not made you a convert.

RORK!

By Avram Davidson • Berkley Books, New York • No. F1146 • 144 pp. • 50¢

Anyone who tries to predict what kind of story Avram Davidson will write next is nuts. It can't be done, and he does them all well. At least, every word of every chapter is wholly convincing and it's useless to complain that it has been done before. It never has, this way.

Ran Lomar is a romantic young Earthling of the third generation after the Third War for the Galaxy, who has yearned all his life for the freedom of the frontier worlds. He

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goes as a junior agent to Pia 2, a world that exists only for its erratic production of "redwing," a medicinal that has not yet been synthesized but keeps the Establishment well and old. Redwing is gathered, under a barter system, by the "Tockies" or Autochthonous Persons, remnants of the original settlers who reverted to near-savagery when they were abandoned for a few centuries between wars. And there are the *rorks*, huge, spidery, fearsome, bearing no likeness at all to the thing someone has put on the cover.

Blundering into this complex of codified custom and bizarre unknown, Ran manages to make sense of it all and to find a *modus operandi* for humans, Tocks and rorks. It's how he does it that counts, and every step is completely believable.

There's a good, hard rule for writing science fiction that says you don't, ever, switch a stereotype from some other field to another planet and call it science fiction. Avram Davidson thumbs his nose at such rules. Good thing, too. You get such fascinating stories.

THE REEFS OF SPACE
By Frederik Pohl and Jack Williamson • Ballantine Books, New York • No. U2172 • 188 pp. • 50¢

STARCHILD
By Frederik Pohl and Jack Williamson • Ballantine Books, New York • No. U2176 • 191 pp. • 50¢

These are the first two parts of a series published in *If* and *Galaxy* respectively, of which a third part is yet to come. It also marks the return to science fiction of Jack Williamson, one of its early masters who has been too long absent.

A less likely collaboration than that of Williamson and Pohl would, at first sight, be difficult to imagine, yet it has worked out very well. I suspect that the original concept of the Reefs of Space may have been Williamson's. It has his touch, and part of the description of the Reefs and their inhabitants carry one back to his earliest stories. There is something in the description of the Plan of Man that also reminds one of the impossible choices in "The Humanoids," especially in the serial version, but the merciless dissection of the computer society has a ring of Pohl.

This is a melodrama of the steady-state universe, in which life is as old or older than matter, and energy-creatures of the deep void, the fusorians, can build hydrogen into the heavy elements to sustain their life and activity, in the process creating the Reefs as coral animals build coral reefs. These reefs, far beyond the outer bounds of the planetary systems where space has not been swept clean of hydrogen, washed by the currents of the solar and galactic winds, have become the refuge of too-individualistic fugitives from the Plan of Man.

The Plan is the systematization of a principle which has been pointed out by such scientists as Harrison Brown, and which is a stereotype in

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science fiction: that only a totalitarian society can manipulate vast numbers of people efficiently, and that it can handle them statistically only if they are forced to behave as identical statistical units. The mutant Mule was an odd-ball unit capable of disrupting the universe of Isaac Asimov's Foundation. The humanoid robots of Jack Williamson's great book could not permit rebellious individualism, and the Machine of these new stories cannot allow unplanned activity.

In the first and better of the two stories, Steve Ryeland, a convicted rebel against the Plan of Man who cannot recall his crime, is summoned by the human Planner and the Machine to undertake research which will produce a reactionless drive and reveal the secret of the Reefs of Space. He wears the iron collar of a Risk, so that his head can be blown off at the touch of a key. Needless to say, he finds himself deeply involved in Risk-prone behavior that takes him to the Reefs and their free society.

In the second episode, a generation later, something or someone from the Reefs who calls himself the Starchild is again threatening the Machine and the Plan of Man. This mysterious power can make the stars blink and shut off the Sun. Agent Boysie Gann finds himself tagged an enemy of the Plan and involved in a maelstrom of impossible phenomena in which dead men walk and talk and the living are transported instantly across millions of miles of space. Actually, his adventures are merely setting the stage for the final episode in a struggle which will be literally that of Man against the stars.

We haven't had this kind of science fiction in years. Who but Jack Williamson could bring it back?

ROGUE DRAGON

By Avram Davidson • Ace Books, New York • No. F-353 • 142 pp. • 40¢

Anyone care to bet you can't switch a standard dragon-killing story out of the fairy tales, knights, nobles and all, and make it fast-moving, thrilling, believable science fiction? Maybe you can't, and I can't, and even Sprague de Camp can't, but Avram Davidson has done it beautifully.

As for rationale, we are on Earth very far in the future, after it has been overwhelmed by mantis-like monsters from the stars, has regained its freedom, and has become a game preserve ruled by petty princelings to which the nobility of Man's star-flung empire comes to hunt the dragons the Kar-chee left behind. Young Jon-Joras has come to arrange a dragon hunt for his own minor king with the Hunt Company and the local lordlings. Only he sees too much and behaves too impulsively when a rogue dragon comes charging out of the forest, and presently finds himself as much a fugitive as it is.

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Adventures in the hinterland among richly raffish people, treachery where he least expects it, intrigue among the stars . . . "Rogue Dragon" has everything. This is the best Ace has had in a long time.

Reprints

THE CASE AGAINST TOMORROW

By Frederik Pohl • Ballantine Books, New York • No. U-2175 • 152 pp. • 50¢

Reissue of the excellent 1957 story collection.

ONLY LOVERS LEFT ALIVE

By Dave Wallis • Bantam Books, New York • No. H.-3029 • 185 pp. • 60¢

A disturbing British novel. The adults have suicided. The teen-agers start to live by and for kicks. Then they learn that adulthood is more than adultery.

RE-BIRTH

By John Wyndham • Ballantine Bal-Hi Books, New York • No. U-2820 • 187 pp. • 50¢

This is the first science fiction in what is apparently a new Ballantine series of paperbacks selected for teen-agers. An introduction for teachers and parents emphasizes that there are indeed serious themes in such stories of a nightmare future, and spells out what they are. The kids will undoubtedly have noted them—and others—in passing.

TRIPLANETARY

By E. E. Smith • Pyramid Books, New York • No. R-1222 • 240 pp. • 50¢

GRAY LENSMAN

By E. E. Smith • Pyramid Books, New York • No. X-1245 • 253 pp. • 60¢

SECOND STAGE LENSMAN

By E. E. Smith • Pyramid Books, New York • No. X-1262 • 271 pp. • 60¢

By this time you have probably heard that Dr. E. E. Smith, author of the "Skylark" and "Lensman" stories that remade science fiction, died early in September. I intend to reserve my own appreciation until his last "Skylark" story, recently serialized in *If*, appears in book form —probably as a Pyramid original. Meanwhile, Pyramid is following a somewhat peculiar logic of its own in publishing the "Lensman" stories. It began some time ago with "First Lensman," a supplementary book which "Doc" Smith wrote to tie "Triplanetary" into the main—and some of us still think the real series, which began in Astounding with "Galactic Patrol," also a Pyramid pb. Now the publisher has harked back to pick up "Triplanetary" and continued with "Gray Lensman"—the peak of the series —and "Second-Stage Lensman." The final volume, "Children of the Lens," is still to come. These yarns were the summit of space opera and still are.

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brass tacks

Dear Editor:

Now a question for Patrick Meadows: What advice would you offer someone who was deciding on what to teach an automated defense system, if he doubted that the other side would renounce their ideology and teach theirs—"Buddha, Confucius, Laotse, and Russian sacred and political saints?"

MICHAEL ETCHISON
Huntsville, Oklahoma

Ah . . . but the thing is, neither side would believe their computer would accept as valid all the philosophy entered into it. So far, computers can't understand the proposition "Believe this . . . . but don't act on it!"

Dear Mr. Campbell:

On page 152 of the January issue of Analog you have an Orwellian translation of a passage in Ecclesiastes. . . .

". . . the race is not to the swift, nor the battle to the strong, neither yet bread to the wise, nor yet riches to men of understanding, nor yet favour to men of skill, but time and chance happeneth to them all."

As an individual, I must concur that ". . . success or failure in competitive activities exhibits no tendency to be commensurate with innate capacity, but that a considerable element of the unpredictable must invariably be taken into account."

Some infamous obfuscations reputedly to have been uttered at the Princeton Institute for Advanced Study include the following:

"If, after successive attempts, you find your results to be minimal, do not decide that all effort should be abandoned, rather renew your endeavors with yet greater and unswerving perseverance."

"A mass of stony encrustation rotating about its axis rarely accumulates a measurable amount of bryophytic vegetation."

Perhaps further famous lines could be camouflaged in a similar manner.

JOSEPH MICHAEL FINE/MIT
17 Inman Street
Cambridge, Massachusetts 02139

Or "Extended lack of immediate proximity intensifies cardiac tropism" maybe?

Dear Mr. Campbell:

Mr. J. E. Enever's "Giant Meteor Impact" in your March issue is the first description I have seen of what might happen if a small asteroid fell into the ocean. It should stimulate discussion.

One serious historical error must be pointed out. (Page 66) "The

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Barringer brothers early this century" did not produce "the first evidence for a strike by a large meteorite". The story is detailed in my "Daniel Moreau Barringer (1860-1929) and his Crater (The Beginning of the Crater Branch of Meteoritics)", published in *METEORITICS*, Vol. 2, No. 3, December 1964. In 1903, my father proved the impact origin of the Barringer (Meteor) Crater by showing that it was formed at the same second that the meteorites fell, as they were found mixed with the ejecta. I was four at the time, and my brothers were younger or unborn! We have tried to do what lay in our power to advance the science, but we are obviously not entitled to any credit for its founding.

BRANDON BARRINGER
2106 Girard Trust Bldg.
Philadelphia, Pa. 19102

Another case of everybody knowing that Robert Fulton invented John Fitch's steamboat? The who makes the public aware tends to get credited with the discovery!

Dear sir:

I noticed in your Reprint Shelf in the March issue a review of the "Two Towers" and "The Return of the King," by T.R.R. Tolkien, in the Ace edition. If this is "Ace's major service for 1965" then Ace certainly has not accomplished much. As you really ought to be aware, the Ace edition was unauthorized by either the publisher or the author of "The Lord of the Rings" and through a catch in U.S. copyright laws, Ace has managed to sell these popular books without paying royalties to the author.

Any Tolkien fan owes a far greater debt to this author than he can possibly express, and it seems to me that the least we can do for the author of "the greatest fantasy adventure of our time" is to support the publisher who is willing to recognize his claim to the book. I am, of course, speaking of the Ballantine edition, which, although slightly more expensive, is a most pleasant alternative to the Ace. Aside from being recommended by Professor Tolkien, the Ballantine edition is newly revised, more complete, contains a special—and excellent—new Foreword by the author, and is generally more readable than the Ace.

As a service to your readers, the least Analog can do is to grant "equal time" to this superior edition. No Tolkien fan could fail to show this much respect for a favorite author. As Tolkien describes the Ace piracy "[these are] dealings one might expect of Saruman in his decay rather than from the defenders of the West."

LISA SERBIN
Reed College
Portland 2, Oregon

On the Tolkien books Ace did, in essence, though not in the letter of the law, pirate the work. At the time we ran the reviews, I was not aware of the facts.

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Dear Mr. Campbell:

After reading Gordon Dickson's short story "Computers Don't Argue" in last September's Analog, I was shocked to see this item from the Chicago *Daily News*.

MAN OUTLASTS
UNRULY COMPUTER

FRESNO, CALIFORNIA (UPI)—A mere man has again triumphed over the onslaught of a computer gone mad—but only after his nerves were folded, spindled and mutilated.

The "infernal machine" began haunting Dr. Goerge B. Kauffman, a Fresno State College chemistry professor, shortly after he ordered three copies of a chemistry book from a New York firm last February.

Three books arrived in March, but they were the wrong books so Kauffman dashed off a note explaining the mistake. He followed up with another letter saying he needed the right books urgently, and they finally arrived in June—after the semester ended.

THAT'S when the professor made his mistake. He sent the books back.

Suddenly he began getting bills for the books . . . and more bills . . . and still more bills.

"I received an endless stream of these documents—always in duplicate—under every possible combination and permutation of my name and for different amounts and under different account numbers," Kauffman said. "One day I received four bills."

FINALLY, in desperation, Kauffman fired off a plea to the company.

"Dear computer," he wrote. "I know that you must be a computer because you have hounded me inexorably with a mechanical obstinacy and an unwillingness to listen to reason."

The letter concluded: "Are you listening, computer? I don't owe you any money—Honest to God."

IN SOME strange manner, the letter managed to elude the computer and fell into the hands of a human, the treasurer of the New York firm. The firm offered "humble apologies" and offered to send three books—free.

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"I promise that I will send them secretly so that our computer won't be aware of it," the treasurer wrote. "We are attempting to calm the machine and make it forget you."

Kauffman's composure has improved steadily. He has been opening his mail again.

R. Alan Van Atta
912 W. Carmen
Chicago, Illinois

You thought science fiction couldn't come true, maybe?

Dear Mr. Campbell:

I repeat the same complaint as Stephen A. Kallis, Jr.—this time about your editorial in the same number as Mr. Kallis' letter.

I have not been to university (sorry), but I only need minimum powers of logic to see that:

1) either Thalidomide has other bad side-effects that we have not been told about

2) or you are absolutely right: its only possible evil effect is on the babies of women lacking Vitamin B during pregnancy, so it is quite futile to withhold it from other people.

You are probably right, but you have told the wrong people—like trying to convince the Esperantists that Esperanto is just the language the world needs.

The fact that I am writing in Europe is quite immaterial. The medical administration of the country in which I live took *all* Thalidomide products off the market at about the same time as you FDA. I have no doubt it would take its cue just as promptly if the FDA decided to restore limited sales of Thalidomide products.

(Typical conversation, when I phoned to check:
ME: Is it forbidden to sell Thalidomide under any circumstances at all, or can practitioners prescribe it?
OFFICIAL: The question does not arise. There are no products containing Thalidomide on the market.
ME: Why so?
OFFICIAL: All such products were taken off the market when . . . when . . .
ME: Quite so, but *who* took them off the market?
OFFICIAL: Pharmacies are only permitted to sell products approved by this Administration.
ME: In other words it is forbidden to sell Thalidomide products.
OFFICIAL: Well . . .)

I have known bad pain in the past, and am likely to feel it again some time in the future—possibly during the last hours of my life. I resent any attempt to prevent me from dimming it. Or is pain considered to be good for the soul?

R. J. Milton

But you know The Administration Knows What's Best For You, doesn't it?

Dear Mr. Campbell:

Your editorial sounded a much needed alarm to every American who, as you are, is interested in

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health for himself and his family and the progress of medical research. There is another item here that merits the attention of all of us in the same connection.

There has been a growing tendency in recent years for some of our lawmakers to regard patents and particularly drug patents as not in the public interest. Here again, the "logic" lies in the conclusion that the drug companies are motivated solely by a greedy desire to make money.

Many years ago, Mussolini promulgated an edict prohibiting patents on drug products in Italy. There has not been an important new drug developed in Italy since that time although Italian scientists have contributed greatly to advances in other fields. Any Italian firm that took the initiative to spend time and money on scientists' salaries and plant investments for a new drug would suffer a withering loss since over four hundred other Italian firms who spent no money on such a development would jump into the business as soon as their discovery was known. As a result, Italian drug firms manufacture drugs patented in the U.S. and other countries since these concerns cannot get patents on drugs in Italy.

Now, to cap the climax, these Italian firms sell large quantities of drugs developed by U.S. industry at bargain prices to our Department of Defense and Veterans' Administration. These agencies do this because the law compels them to purchase drugs from the lowest bidder.

All of this information comes from the printed record of hearings on S. 1047, a bill which would prohibit purchase by the U.S. of any product manufactured under an infringement of a valid U.S. patent, unless the Secretary of Defense specifically finds it necessary for the security of the country. These hearings were held in June, July and August 1965. One of our state senators has written in answer to a query that as of March 4, 1966, no action has been taken on S. 1047 since the hearings and the proposed legislation is still pending before the Senate Judiciary Committee.

In addition, our House of Repre-

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ATMOSPHERE IN SPACE CABINS and Closed Environments
Edited by KARL KAMMERMEYER
May, 1966; Approx. 300 pp.; illus.; $12.00

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sentatives is considering a bill, H.R. 8844, to provide for compulsory licensing of prescription drug patents. It takes about five or six years of research to develop a new drug and costs about five million dollars. Could this expenditure be justified if the resultant patent had to be licensed to anyone who could provide what some bureaucrat would consider "a fair price?"

Creativity in an individual or a nation can be destroyed by a very simple operation and we sure as hell know how to do it.

J. FREDERICK WALKER

The fabled Common Man just don't think he oughta hafta pay some Egghead fer inventin' stuff. You know—like artists; they LIKE starving in a garrett!

Dear Mr. Campbell:

Your discussion of the famous blackout titled "The Best Made Plants . . ." was one of your better efforts. I have been a regular reader of your publication since about 1948 and I always start with the editorial. My wife also reads every issue—*except* the editorial.

Allow me to express an opinion that may bring indignation down upon my head. In the twelve odd years that I have knocked about the electrical utility field in one capacity or another I have got the impression that the composite utility system in the Northeast was entirely marginal service coupled with considerable ballyhoo and propaganda of a self-serving nature. The recent blackout was only a little more widespread rerun of what occurs every hot spell in some part of New York City.

From personal observation I know that other systems survive upsets greater in magnitude than the initial disturbance as measured by the reported relay setting at Beck Station. I also remember the cold empty feeling in the pit of my stomach every time I ordered a transmission line breaker opened or closed on the high-voltage system. The results were pretty much as expected each time. However, never were the results precisely as predicted. I certainly agree that the confidence and certainty expressed by top utility managements periodically is directly proportional to their ignorance.

Perhaps one might find that humanity is invariably capable of making use of materials and forces before understanding and correct explanation become available. That line sounds suspiciously like a statement that we learn by doing.

Keep the editorials and articles coming. I know that it isn't always possible to have a two- or three-part story running but I do like the longer stories.

EMORY H. HALL
4048 Taylor Drive
Fairfax, Va., 22030

The way to be unafraid and fully confident is, as I said, to have Total Ignorance!

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EDITORIAL *continued from page 7*

them so that the car's ignition could not be turned on unless the seat belts in every occupied seat (a pressure switch in the seat is simple) were fastened. This would make sure that the seat belts were fastened every time the car was used. It is agreed by all that seat belts save lives, so why don't they install this obviously simple and workable device to make sure the belts are used.

Because people don't want that much safety.

They don't want an alert police tightly enforcing the rules of good driving, either. It isn't high speed that kills people—it's bad driving. Loud noises and great public indignation arise over speed; it's taken a long time to impose *low*-speed limits—to recognize that the sluggish driver is the cause of accidents to *other* people. We have one hundred plus car-chain collisions—and there is almost no loud howl about the common practice of tailgating. The traffic police remain simply *speed* cops. Speed doesn't kill—we're all going just about twenty miles per second, remember.

It is the nut that holds the steering wheel that kills. *And he doesn't want to be deprived of that privilege.*

He wants to blame it on somebody—anybody—else; not on his own bad manners or incompetence.

And I mean incompetence. For most of the states in the Union total blindness doesn't invalidate a driver's license. Known chronic alcoholism, epilepsy, known drug addiction, a medical history of repeated heart attacks, a record of a dozen death or injury accidents for four years—these aren't reasons for taking the nut away from the steering wheel?

And someone says the *cars* are "Unsafe At Any Speed."

The Editor.

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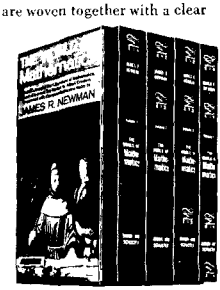

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